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The American Surrender in the Philippines, April--May 1942

Dr. Louis Morton
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Introduction

MOST of the histories written about American arms in World War II recount the victories of our forces on land and sea, and in the air. This account is the story of defeat and surrender. The loss of the Philippine Islands in May 1942 was a decisive, though not unexpected, blow to American policy and prestige in the Far East. The surrender of an American Force numbering well over 100,000 men was a unique and unparalleled event in American history.

The story of this surrender, although it deals with defeat, is a story of heroism and is filled with human drama and conflict. It tells of the humiliation of proud men, and of the most difficult decision any military commander can make: to give up the fight and surrender his men to the enemy.

American officers are taught to win victories. United States Army Regulations deal only very briefly with surrender. The subject, as one would expect, is not taught at Fort Leavenworth or the War College. In the Philippines, our senior commanders were faced with problems they had never studied. Who can surrender? Under what circumstances is surrender justified? What is the correct procedure for such action? When is a surrender legal and when is it treason? Can a subordinate surrender when his situation demands it, even though his superior has ordered him not to? Can a commander order a subordinate who is not in danger of defeat to surrender? Little guidance could be found in the regulations, and there were few precedences for the men who had to answer these questions in 1942. Their solutions form a large part of this account.

This paper is based on all existing records and upon oral testimony. The relevant files of the War Department, including top secret, secret, confidential, and restricted matter, and the records brought out of Corregidor in the last days of the campaign or recovered after the war, were carefully examined. Japanese sources were not neglected, nor were the records of the trial of General Homma and other high-ranking Japanese officers. I have also questioned at length those survivors of the Philippines campaign whose testimony forms an important part of the story.

For reasons of cryptographic security, quotations from encoded radio messages have been paraphrased. All times used are Philippine.

The Retreat to Bataan

The war in the Philippines began on the morning of 8 December 1941 with an air

What circumstances justify surrender? When is surrender legal? Can a subordinate refuse to surrender? These were among the many grave questions which faced American commanders in the Philippines in 1942

attack against Baguio, the Philippine summer capital. About noon, Japanese planes struck Clark Field, 50 miles north of Manila, with devastating effect, destroying 17 B-17s and 55 P-40s. The loss of half the heavy bombers of the Far East Air Force ended all possibility of an air offensive.

After three preliminary landings to secure airfields, the Japanese landed their main invasion force on Luzon near Lingayen on 22 December. Failing to repel the invaders at the beaches, General MacArthur withdrew his forces to the Bataan Peninsula. On Christmas Day, he moved his headquarters to Corregidor and the next day declared Manila an open city.

In the islands to the south, the Japanese made their initial landings at Davao in Mindanao on 20 December. After occupying Jolo Island, they made no further effort to extend their conquests in the southern or central Philippines until the fall of Bataan.

On Luzon, the movement to Bataan was completed by 6 January, when American and Philippine troops took up their positions along the first line of resistance. The Japanese attacked this line vigorously and by the 22nd had forced the Americans and Filipinos to pull back to the second and final line. Attempts to turn this line resulted in such severe losses to the Japanese that they were forced to await reinforcements before undertaking another major assault.

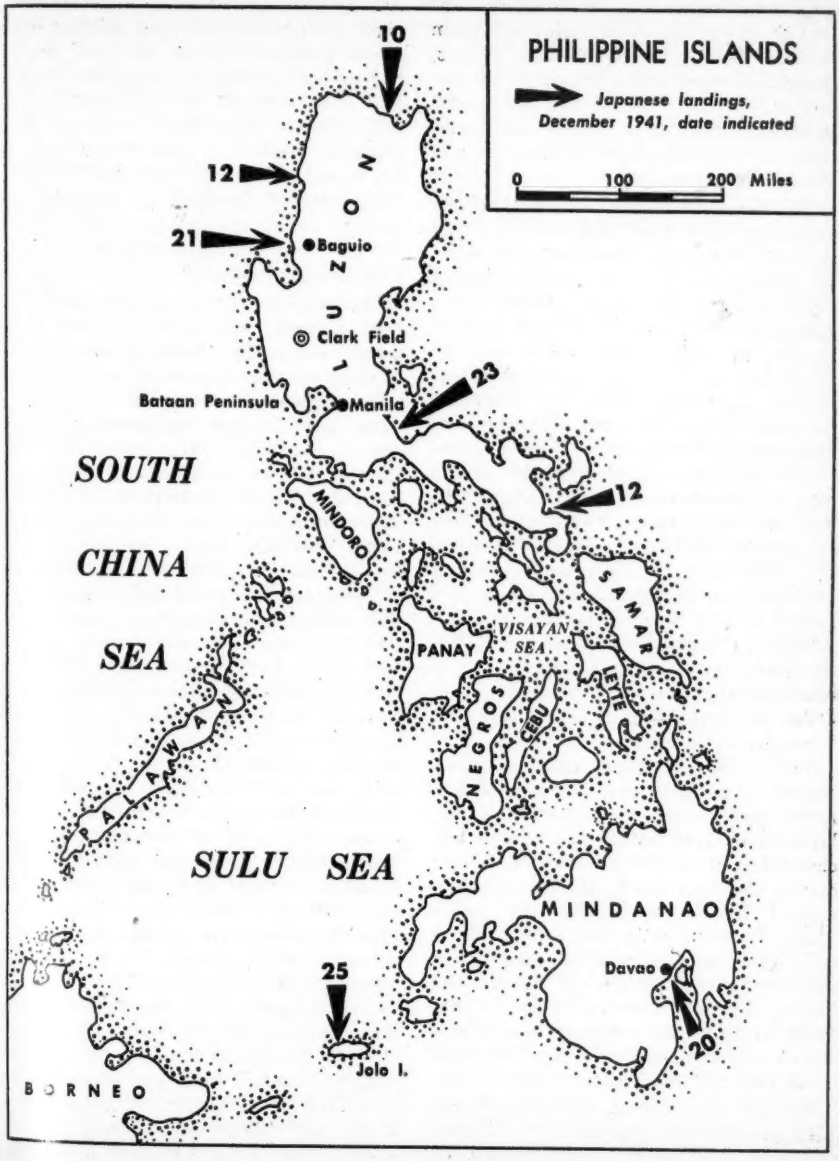
Despite this success, the position of the defending force was critical. The most determined efforts of the War Department to supply the Philippine garrison came to naught. By 24 December, the Far East Air Force had moved from the Philippines to bases in Australia and the East Indies. Two days later, the United States Asiatic Fleet, based on Manila, sailed south. The Japanese were thus left with unchallenged control of the air and sea in the Western Pacific. Only occasional shipments of supplies could be slipped through the enemy blockade. On 6 January, the troops on Luzon were placed on half rations. On 2 March, the ration was further reduced. Although the men fighting in the Philippines still hoped for reinforcements and supplies from home, and although every effort was made to relieve them, it was evident that the Philippine garrison was doomed.

In Washington, much thought was given to General MacArthur's future. Finally, late in February, he was ordered to Australia, the time and method of departure being left to him. On 11 March, with his family and part of his staff, he left Corregidor by motor torpedo boat, arriving in Mindanao the next day. From there he flew to Australia.

Succeeding MacArthur as commander in the Philippines, but still subordinate to him, was Lieutenant General Jonathan M. Wainwright. He had under his command two major forces, the Luzon Force and the Visayan-Mindanao Force. The first, commanded by Major General Edward P. King, Jr., consisted of the troops on Bataan, numbering approximately 78,000 Americans and Filipinos. The Visayan-Mindanao Force was led by Major General William F. Sharp and included the troops in the central and southern Philippines. There were garrisons on Mindanao, where Sharp had his headquarters, and on Cebu, Panay, Negros, Leyte, and Samar. Each of the islands had its own local commander who reported to General Sharp.

The Surrender of Bataan

At the beginning of April 1942, the Luzon Force still held the southern third of Bataan. The condition of the troops was at a low ebb. They were on one-third rations, had inadequate supplies, clothing, and equipment, were completely exhausted, and were disheartened by the lack of air support. On 28 March, General Wain-


PHILIPPINE ISLANDS
Japanese landings, December 1941, date indicated
0 100 200 Miles
10
12
21
LUZON
Baguio
Clark Field
Bataan Peninsula
Manila
23
12
SOUTH CHINA SEA
MINDORO
SAMAR
VISAYAN SEA
PANAY
LEYTE
NEGROS
CEBU
PALAWAN
SULU SEA
MINDANAO
Davao
20
25
Jolo I.
BORNEO

wright had reported to the Chief of Staff that there was only enough food on Bataan to feed the troops on one-third rations, "poorly balanced and deficient in vitamin content," until 15 April. "To be frank," he added, "if we do not receive additional supplies, the troops on Bataan will be starved into submission."

The Japanese began their final attack on Bataan on 3 April and in 4 days had split the American lines and outflanked the force on the right. On the 7th, General King, realizing the extreme gravity of his situation, sent his chief of staff to Corregidor to inform Wainwright that he might have to surrender. Although Wainwright appreciated fully the desperate circumstances of the Luzon Force, his instructions from President Roosevelt precluded the possibility of surrendering any part of his command. "Our forces," the President had directed, "will fight so long as any possibility of resistance remains. . . . Resistance to Japanese aggression transcends in importance any other obligation we now face in the Philippines." With these instructions, Wainwright had no choice but to order General King to counterattack and to instruct him that, under no circumstances, was the Luzon Force to surrender.

The physical condition of the men on Bataan made the execution of these orders impossible. Because of malnutrition, malaria, and intestinal disease, combat efficiency had dropped more than 75 percent during the final weeks of the campaign. Colonel Harold W. Glattly, the Luzon Force Surgeon, estimated that at least 3,500 calories were required daily for a man to fight effectively on Bataan. By March, the men were being issued only 1,000 calories a day. Intestinal disease was almost universal, and by 1 April the malarial rate had reached 1,000 cases daily.

By late afternoon of 8 April, General King realized that the military situation did not permit further effective resistance. All his reserves had been committed. The right half of his line had disintegrated under Japanese attack, and the enemy had a clear passage to the south. In the path of the Japanese lay the hospitals with their 12,000 defenseless patients. "All roads and trails . . .," said General King in his report, "were jammed with refugees and stragglers pursued by Japanese infantry columns and tanks, and were under constant bombing and strafing by low-flying enemy bombers."

General King was now faced with the most difficult decision a military commander can make: Should he continue resistance even though his cause was hopeless, or should he surrender? His orders were clear: he must not surrender under any circumstances. He called his staff together late in the afternoon of the 8th and put this question to them: Would the Japanese be able to reach the high ground above Mariveles—key to the defenses of Bataan and Corregidor—as rapidly if he opposed them as they would if he did not. The consensus was that the enemy would take this ground by the evening of the next day, 9 April, in any event. With no relief in sight, and with no possible chance to delay the enemy, General King decided to surrender. He made this decision with the full understanding that the responsibility was his own. His commander had already forbidden the action he was about to take, and he did not embarrass General Wainwright by informing him of his decision. He ordered all weapons and equipment destroyed immediately. Motor vehicles and gasoline he saved to transport his men to prison camps.

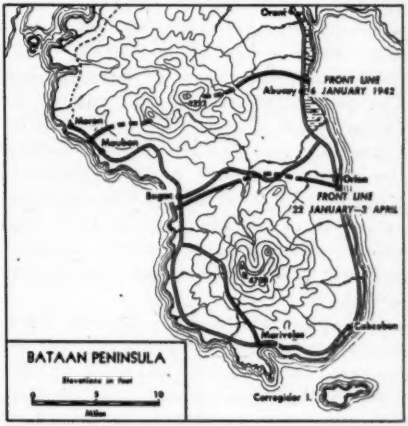
General Wainwright on Corregidor remained in ignorance of what was happening on Bataan. Since the night of 7 April, when he had talked with King's chief of staff, no mention had been made of the possibility of surrender, although some of his staff officers had gained the impression that King felt such a decision

might be forced on him. Wainwright last spoke to King at 0300 on the 9th, and no mention was then made of surrender, although King had already made his decision. General Wainwright first learned of it 3 hours later. He immediately disapproved the action, but it was too late to do anything about it.

April 9 is a fateful day in American history. On that day in 1865, General Robert E. Lee surrendered the Army of Northern Virginia to General Grant and brought the Civil War to an end. On 9 April 1942, 77 years later, General King surrendered his army to the Japanese, bringing the Battle of Bataan to a close and sealing the fate of the Philippine Islands. It was daybreak when General King left for the front lines to meet the Japanese representative, Colonel Genpu Nakayama. Apparently, the Japanese believed they were to meet representatives of General Wainwright, for Nakayama's first remark, addressed to General King, was, "You are General Wainwright?" When King said he was not and identified himself, Nakayama asked where Wainwright was and why he had not come. The General finally convinced Nakayama that he could not get Wainwright and that he represented only his own troops, whom he wished to surrender. He emphasized that the vehicles he had saved could be utilized to transport the wounded, sick, and exhausted troops to prison camps. Nakayama stated that the surrender would have to be unconditional. Every attempt to secure assurance from the Japanese that the American and Philippine troops would be treated as prisoners of war failed. Finally, Nakayama declared "The Imperial Japanese Army are not barbarians." Realizing that his position was hopeless and that every minute delayed meant the death of more of his men, General King agreed to unconditional surrender. He was informed that until all resistance ceased and all his men were in Japanese hands, he was to consider himself a hostage. No attempt was made to make the surrender a matter of record with a signed statement.

Ironically enough, at the time King was concluding his arrangements for surrender in violation of his orders, the President was modifying his instructions to Wainwright so as to give him discretion to make any decision he thought necessary, including the authority to surrender.

The fate of the men who surrendered on Bataan on 9 April is too well known to require description here. The Death March to the prison camps gave the lie to Colonel



Nakayama's statement that "The Imperial Japanese Army are not barbarians."

The Fall of Corregidor

After the fall of Bataan, Corregidor was doomed. With heavy artillery emplaced on the south tip of Bataan in the hospital area where American patients were quartered, the Japanese pounded the defenses of Corregidor. Bombs from Japanese planes hit the island at a rapidly increasing tempo. The hospital in Malinta tunnel was filled to overflowing. There was a critical shortage of water and power, and the well

at the entrance to the tunnel was kept in operation only with great difficulty. Fuel for the generators was low and would not last beyond the end of May. The blockade became tighter and food scarcer every day.

By the beginning of May, it was evident that the enemy would soon attempt to capture Corregidor. After 29 April, the Emperor's birthday, air and artillery attacks increased in intensity, and on 4 May, Corregidor received the heaviest bombardment of the campaign. On that day, Wainwright told General Marshall that the enemy was capable of assaulting Corregidor at any time. "Considering the present level of morale," he said, "I estimate that we have something less than an even chance to beat off an assault."

This prediction was an accurate one. The next night, at 2230, elements of the Japanese *4th Division* began landing on Corregidor, and by 0300 the next morning the Japanese troops had established a beachhead 50 yards inland. When daylight came, the Americans were on their final defense line, and the leading Japanese elements were only 500 yards from Malinta tunnel.

By 1000 in the morning, General Wainwright had decided that defeat was inevitable. Like King, he had made an estimate of the situation and had concluded that there was nothing to be gained by continuing resistance. He had no weapons capable of stopping the enemy's tanks and flame throwers. In Malinta tunnel, in the path of the Japanese, were approximately 1,500 wounded men and 75 nurses. By his surrender, Wainwright reasoned, he would avert the needless sacrifice of his men, and would keep the dreaded tanks and flame throwers out of the tunnel.

Having made his decision, Wainwright ordered the destruction of all arms larger than .45 caliber. He had his chief of staff broadcast a message to the Japanese announcing his decision, to become effective at noon, when a white flag would be hoisted. In the hour before noon, Wainwright sent three messages announcing his decision. One went to President Roosevelt and one to MacArthur. The final message went to General Sharp, commander of the Visayan-Mindanao Force. In it, Wainwright told Sharp that he was immediately released from his, Wainwright's command, and was to report to General MacArthur, Wainwright's superior, for orders. General Wainwright obviously hoped in this way to avoid surrendering the Visayan-Mindanao Force, for he left himself only with the command of troops on Corregidor and three other small islands in Manila Bay.

Great difficulty was experienced in making contact with the Japanese on the morning of 6 May. Finally, by 1400, arrangements for a meeting between Wainwright and Lieutenant General Masaharu Homma, commander of the Japanese forces in the Philippines, were concluded.

The two met on Bataan, in a house one mile north of Cabcaben, at about 1700 in the afternoon. Seated at a long table on the porch, facing the Japanese commander, General Wainwright handed him the formal signed document surrendering only the American forces on Corregidor and the neighboring islands in Manila Bay. Although General Homma could read and speak English, he did not look at the paper, but handed it to an interpreter. After hearing it read in Japanese, he replied that the surrender would not be accepted unless it included all American and Philippine troops in the Philippines. There followed a heated discussion over the status of the forces in the Philippines during which Homma said that he refused to believe that Wainwright no longer commanded the Visayan-Mindanao Force. He said that he had seen the General Order by which Wainwright had assumed command of all forces in the Philippines and asked when the force in the south had

been placed in MacArthur's command. Wainwright answered "several days ago," though it had only been 5 hours. General Wainwright stood up to leave. Wainwright was in no position to bargain. He had no weapons with which to fight, and the Japanese were closer to Malinta tunnel than they had been when he had made his decision to surrender. After a hurried conference with his chief of staff, Wainwright declared that he would surrender the entire American force in the Philippines. Homma now refused to accept the surrender. "You have denied your authority," he told Wainwright, ". . . I advise you to return to Corregidor and think the matter over. If you see fit to surrender, then surrender to the Commanding Officer of the division on Corregidor. He in turn will bring you to me in Manila." He then strode off the porch, and the Americans were taken back to Corregidor.

There was little Wainwright could do on his return to Corregidor but accept General Homma's terms. His attempt to avert the surrender of the Visayan-Mindanao Force had failed. Further resistance was evidently useless, even if all his weapons had not already been destroyed. In his absence, 2,000 men in the tunnel, led by Brigadier General Charles C. Drake, had already capitulated. Wainwright asked to be taken to the senior Japanese commander on the island, and by midnight the surrender document was completed and signed. In it, General Wainwright agreed to surrender all forces in the Philippines, including those he had released from his command that morning, within 4 days. Nothing was to be destroyed and heavy arms and equipment were to be kept intact. "Japanese Army and Navy," stated the surrender document, "will not cease their operations until they recognize faithfulness in executing the above-mentioned orders."

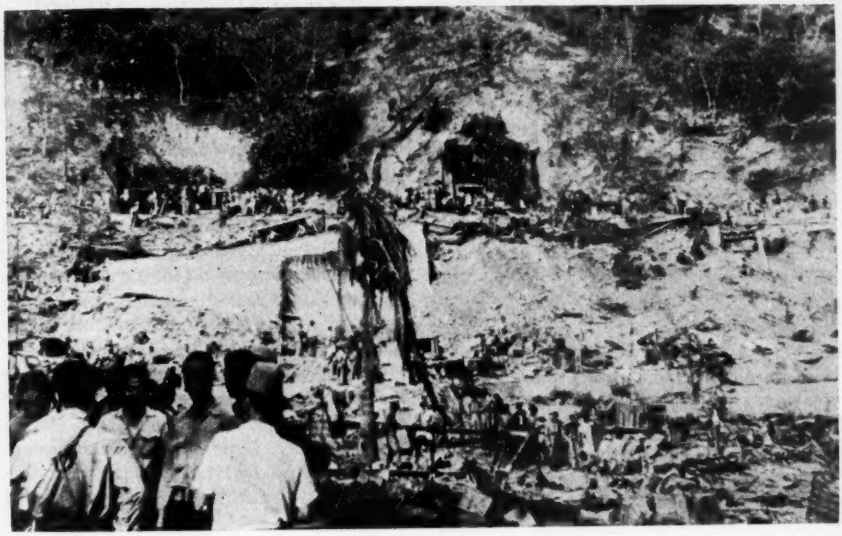
Promptly on the morning of 7 May, a Japanese officer called on General Wainwright to discuss the measures necessary to carry out the terms agreed upon. First, Wainwright had to reassume command of the Visayan-Mindanao Force, then he had to order General Sharp to surrender. Since he could not be sure that Sharp would obey his orders, Wainwright decided to send his operations officer, Colonel Jesse T. Traywick, to Mindanao with a letter explaining what had happened. After this letter was prepared and arrangements made to send Traywick to Mindanao by plane, Wainwright was taken to Manila. At midnight of the 7th, and again the next day, he broadcast the terms of the surrender over the Japanese-controlled Manila radio station, and directed General Sharp to follow his orders.

Surrender of the Visayan-Mindanao Force

Although General Wainwright's surrender ended all organized resistance on Luzon and Corregidor and gave the enemy what he needed most, Manila Bay, it was the beginning of a strange series of events. None of the commanders in the south had any desire to surrender, and none was so hard-pressed as to be incapable of further resistance. Moreover, General Sharp had been released from Wainwright's command and had already reported to General MacArthur. Legally, he could deny the validity of his former commander's orders. That he did not, and that he eventually ordered all officers under his command to surrender, can only be explained by the fact that he was convinced that the Japanese would kill the 11,000 men on Corregidor if the rest of the forces in the Philippines did not surrender. There is no direct evidence that the Japanese actually made such a threat, but there is no doubt that General Wainwright and all American officers firmly believed it to be true.

Added to the implied threat of what might happen to these men, practically all of whom were concentrated in a small area on the beach at Corregidor, was a direct

A pall of smoke over Manila from fires started by Japanese bombing the last of December 1941, above, seems to symbolize the fall of the Philippines a short time later. Below, a Japanese war painting shows the meeting of General Wainwright and General Homma on Bataan during the afternoon of 6 May 1942.—US Army photos.



On 7 May 1942, the day after the American surrender, the island of Corregidor, above, presents a picture of desolation; the view is looking south toward the main tunnel. Below, another Japanese war painting, entitled "April 9th," is believed to be a scene of the start of the Death March from Bataan.—US Army photos.

threat, which Wainwright only learned about later, that for every day the surrender was delayed 10 American officers would be executed.

When General Sharp learned of Wainwright's midnight broadcast directing him to surrender, he asked MacArthur for instructions. MacArthur informed him that General Wainwright's orders had no validity, and directed him to break up his force into small guerrilla groups. "You have full authority," he told Sharp, "to make any decision that may be required in this emergency."

Sharp immediately released from his control the commanders of the islands in the central Philippines in order to permit them to organize for guerrilla operations. He made no immediate decision as to whether he would place himself under Wainwright's command, but it seems evident from his action that he probably did not intend to do so.

Colonel Traywick, Wainwright's emissary, reached Mindanao on 9 May, and met General Sharp the next day. He delivered Wainwright's letter and told Sharp the circumstances which had led to its preparation. He made clear that if the Visayan-Mindanao Force was not surrendered the Japanese would probably reject the terms already agreed upon and would open fire on the Corregidor prisoners. It was this threat that forced General Sharp to capitulate. His own position was not desperate enough to make him do so.

This decision placed General Sharp in exactly the same position Wainwright had been in on 7 May. He now had to reassume command of the officers he had released from his command the day before. This he did on 10 May, in a clear-text radio, which also directed all commanders to cease operations at once, raise the white flag, and await the arrival of one of his staff officers who would explain the terms of capitulation.

General Sharp's orders to his subordinates to surrender was received variously. Surrender of the troops on Mindanao, Leyte, and Samar was generally without incident, although a large number of troops preferred to leave their units rather than give themselves up to the Japanese.

Brigadier General Bradford G. Chynoweth, the commander on Cebu where the Japanese had landed on 10 April, refused to comply with Sharp's radio. Reasoning that this order was either an enemy ruse, or that it had been given at bayonet point, he instructed his communications officer not to acknowledge any further messages. He planned to go to Leyte with a part of his troops and organize a guerrilla force there.

On 13 May, while he was making preparations to move to Leyte, Chynoweth learned that Sharp's envoy was on his way to Cebu. "That," wrote Chynoweth, "knocked us into a tailspin." Knowing that Sharp had been in communication with General MacArthur, he believed that the order to surrender must have had MacArthur's consent. In the hope that word might come from Australia, he instructed one of his men to "freeze on the radio." He did not wish to surrender, and his situation did not require it. But both Generals Wainwright and Sharp had directed that he do so. "If MacArthur," he hoped desperately, "would only tell us now to hang on." The only word received was the announcement from San Francisco that MacArthur was no longer in communication with the Philippines. That night, Chynoweth notified his troops to assemble at a central point, prepared to surrender.

On 15 May, Sharp's courier arrived in Cebu. He gave Sharp's order and the written terms to Chynoweth, and told him that the Japanese had concentrated the Americans on Corregidor under their guns and would kill them "if the surrender were not faithfully executed." The next day,

Chynoweth marched his men down out of the hills.

On Negros, where Colonel Roger Hilsman commanded, trouble of a different sort developed. Although the Japanese had not landed on that island, Hilsman did not oppose Sharp's order to surrender. But all his efforts to assemble his troops for the purpose of surrendering them failed. With the support of the civil authorities, his subordinate commanders refused to follow his orders, fearing harsh treatment from the Japanese. Some withdrew into the mountains and could not be located. When Hilsman notified Sharp of his difficulties, Sharp told him on 19 May that the Japanese on Mindanao had been most lenient and had asked civilian officials to remain at their posts. "The treatment of military forces," Sharp went on to say, "has been strictly in accordance with the Geneva Convention as indicated in our rules of land warfare." In view of his reason for surrendering, and of the Bataan Death March, this was indeed a curious statement.

The authorities on Negros held approximately 200 Japanese internees and threatened to put them to death if forced to surrender. Since the Japanese had threatened to kill 10 American officers for every day the United States Forces held out, General Wainwright was greatly concerned over events on Negros. It was with great relief that he heard that the Japanese had accepted the surrender of one of the three battalions on the island and a part of a second. Only one of the three battalion commanders ever came down out of the hills.

Perhaps the most dramatic incident in the surrender of the Visayan-Mindanao Force is that of the garrison on Panay, where Colonel Albert F. Christie was in command. The correspondence between Sharp and Christie brings out clearly the dilemma in which subordinate commanders found themselves.

The 7,000 American and Philippine troops on Panay had withdrawn to previously prepared positions when the enemy landed there on 14 April. After the Japanese gained the road network, they made no further effort to take the island. Colonel Christie was in an excellent position. His forces were well organized and fairly well equipped, and plans had already been made for guerrilla warfare.

Upon receipt of Sharp's message to surrender, Christie expressed his opposition in very strong terms and questioned Sharp's authority to issue such an order. "To satisfy me," he said, "I must have MacArthur's O.K., otherwise it may be treason." He saw no reason why he should surrender his force because, as he put it, "some Corregidor shell-shocked terms" had been made. He closed his message to Sharp with an appeal to give him a free hand in dealing with the enemy.

General Sharp, the next day, warned Christie that failure to follow orders would have disastrous results. He pointed out that neither Wainwright's nor his surrender had been accepted yet, and that unless all island commanders capitulated, "active operations would be resumed." MacArthur, he told Christie, had been informed of his actions.

Colonel Christie persisted in refusing to accept the order to surrender, arguing, first, that it was unnecessary, second, that it would have an adverse effect on the civil population, and, third, that he doubted the authority of either Wainwright or Sharp to order his surrender. He felt that to comply with Sharp's directions would, as he put it, "tend toward treason." He questioned whether the surrender of one island meant the automatic surrender of others. "I strongly urge you," he wrote Sharp, "to have the approval of the War Department through MacArthur." "In this delicate situation," he pleaded, "please do not issue me any peremptory order that will embarrass or get us into mutual con-

flict. . . . Make me independent. Do not put me on the sacrifice block."

The correspondence came to an end on 19 May when Christie asked what General MacArthur had said in response to Sharp's message regarding surrender. MacArthur had not replied to this message, it will be recalled, and Sharp's answer to Christie was a curt order to surrender as directed. "No further comments from you are desired," he was told. "Acknowledge this message and state actions taken at once."

On the same day, Sharp's representative arrived at Christie's headquarters. He explained to Christie that acceptance of Wainwright's surrender of Corregidor was conditional on the surrender of all forces in the Philippines. The lives of 11,000 men on Corregidor were in jeopardy if the Visayan-Mindanao Force did not capitulate. The question Christie had to answer was the same one the other island commanders had had to answer: Was the holding of Panay, or any other island, important enough to justify the death of the Corregidor prisoners? He decided, as the others had, that it was not, and made arrangements to surrender. He called together his officers and told them of his decision. A large part of his command had no wish to become prisoners of war. When he marched his troops into the Japanese lines, approximately 90 percent of his men had vanished into the hills or had gone back to their homes.

By the end of May, all troops in the Philippines, with the exception of certain small detachments, had surrendered in compliance with General Wainwright's instructions. On 9 June, General Wainwright was notified by the Japanese that all organized resistance had ended. "Your high command ceases," he was told, "and you are now a prisoner of war." On that day, the American and Philippine troops who had laid down their arms were finally accorded the status of prisoners of war by the Japanese.

On May 5th (1942), after a week of intensive bombardment which buried many of the shore defenses under landslides, the enemy made a landing on North Point of Corregidor. The shattered defenses were unable to dam the Japanese tide. The following day, the exhausted and depleted forces were overwhelmed and finally surrendered.

The final spirit of General Wainwright's heroic command is indicated by the extract from a letter written by him just before Corregidor fell:

"As I write this, we are subjected to terrific air and artillery bombardment and it is unreasonable to expect that we can hold out for long. We have done our best, both here and on Bataan, and although beaten we are still unashamed."

General of the Army George C. Marshall, in
the Biennial Report of the Chief of Staff of the
United States Army, July 1, 1941 to June 30, 1943.

THE PRINCIPLES OF WAR

Lieutenant Colonel Frank H. Skelly, *Field Artillery*
Instructor, Command and General Staff College

THE arts, sciences, and professions have their basic principles, variously referred to as axioms, laws, hypotheses, phenomena, or theorems. The application of these principles or great truths has changed in some instances but the principles themselves remain unchanged.*

The art of war is no exception. A number of principles applicable to warfare have been evolved through the centuries by students of war. These principles have been derived from a study of both the successes and the failures in war. Some of them date back to the writings of the pre-Christian era. The principles have always been applicable to war, are applicable now, and are not expected to change in the future.

The principles of war propounded by various authorities on the subject seem to differ. More than a hundred maxims have been derived from the writings of Napoleon. Von Clausewitz and Marshal Foch have each included numerous principles in their writings. One authority has written that there are but five true principles of war. Great Britain recognizes 10. However, upon analysis, the principles set forth by all become remarkably similar. Any apparent differences rest largely in the choice of name, scope, or interpretation of each principle by a particular authority.

The nine principles of war of the United States Army are as follows:

1. The principle of the OBJECTIVE.
2. The principle of SIMPLICITY.
3. The principle of UNITY OF COMMAND.
4. The principle of the OFFENSIVE.
5. The principle of MANEUVER.
6. The principle of MASS.
7. The principle of ECONOMY OF FORCES.
8. The principle of SURPRISE.
9. The principle of SECURITY.

The various principles complement each other, are dependent on one another, and in some situations seem to overlap or conflict with each other. One principle cannot be applied to the neglect of the others; nor can a principle always be applied in its entirety. The principles of war may be employed in varying degrees, but all successful commanders have been guided by them, either by design or by habit.

Objective

The principle of the objective focuses all efforts on a goal: Every force has

* The author wishes to express his appreciation to Colonel Einar B. Gjelsteen, FA, and to Lieutenant Colonel Cyrus A. Dolph III, Inf. Instructional material previously prepared by them for use at the Command and General Staff College was substantially helpful in the preparation of this article.

Although many military authorities differ as to details, the United States Army recognizes nine Principles of War. They complement one another and their application encompasses the whole art of warfare

an objective or purpose in its operations. The commander uses all necessary available means to attain his objective.

The ultimate objective of all military operations is the destruction of the effectiveness of the enemy's armed forces and of his will to fight. Only by the assignment of an objective, task, or mission can the strength of the command be focused on the defeat of the enemy. Each element of a military force contributes to attaining the objective of the larger force of which it is a part.

If any one principle of war can be said to be the most important, that of the objective is the one. Without an objective, the other principles of war become meaningless.

An example of a clear-cut objective was the one given General Eisenhower for the European campaign. "You will enter the Continent of Europe, and, in conjunction with the other United Nations, undertake operations aimed at the heart of Germany and the destruction of her armed forces." This was the over-all objective for the whole operation. To accomplish this objective, the Supreme Commander assigned intermediate objectives. The first intermediate objective was the seizing of a beachhead in northwestern Europe. For each operation, each subordinate unit in turn was assigned a definite objective.

Simplicity

The principle of simplicity means that military plans and orders should be simple and easy to understand. They should be direct, clear, and definite. Long and complicated orders are susceptible to being misunderstood and improperly executed. Changes in the situation require changes in plans and orders. Flexibility is made possible through simplicity. Unity of command and chain of command lead to simplicity by preventing complications and misunderstandings.

The military organization has been evolved to favor this principle of simplicity. In the chain of command, one individual controls a large number through a few subordinate commanders.

The direct instructions issued by the Combined Chiefs of Staff and Joint Chiefs of Staff to the theater commanders were excellent examples of the principle of simplicity. They were usually one page long. They were models of simplicity in that they told the commanders of the theaters what to do, even though they dealt with complicated subjects and the details were often complex.

Unity of Command

The principle of unity of command applies to all of our military duties. Unity of command implies cooperation or team play. In order to exert the maximum strength, each individual must do his job as a member of the team. The individual in the squad must fit in with the other members, all working to the common goal of squad efficiency. Within the platoon, the squads are trained to accomplish the mission of the platoon by joint action. This team play must be applied in all levels of command. Unity of command is essential.

This requires loyalty and discipline on the part of each individual. He must subordinate himself to the good of the unit and do his job properly in any and all conditions. A high degree of leadership is required on the part of all commanders.

Training is required on the part of all personnel, so that they may properly fit into the team with all elements functioning properly. The development and employment of the atomic bomb is an example of the principle of unity of command. In its development and manufacture, scientists from Great Britain, Canada, and the United States pooled their knowledge. Prospectors over the

world searched for the necessary ores. Labor and business applied their "know how" to work under Army direction to build the necessary plants and conduct tests. The military forces of the Army, Air, and Navy joined in the selection of the targets. The Army, Navy, and Marines provided the bases from which the Army Air Forces took off to bomb the targets. The results of this cooperation are well known to the world. But often overlooked or forgotten is the fact that not a hint of this secret ever leaked out. This required not only the cooperation of those working on the project but also the cooperation of newspapers, intelligence agencies, and many people in high government positions.

Offensive

Offensive action permits the exercise of initiative and the selection of objectives to accomplish the mission assigned. *Only by offensive action can a decision be gained.* By offensive action, the attacker imposes his will upon the enemy. The offensive is accompanied by high morale and an aggressive spirit. On the other hand, the continued defensive saps ability and breeds a defeatist attitude. One of our American traits is reflected in the principle of the offensive. Our military policy is to carry operations to the enemy. This policy is predicated upon the offensive. It contemplates that we will only resort to the defensive when necessary to gain time or to economize at one point in order to permit the offensive at another.

In November 1942, with Russia hard pressed by the Germans, the situation in North Africa critical, and America still unprepared, we took the offensive by landing in North Africa. On this occasion, the initiative passed to the Allies and remained with them for the rest of the war.

Maneuver

The principle of maneuver means the movement or displacement of troops toward the enemy in order to provide the necessary mass at the proper time and place for the attainment of the objective. Many great commanders of the past won their greatest successes through maneuver. Hannibal, Napoleon, and Stonewall Jackson are examples.

The tempo of war has been greatly increased as our means of movement have advanced from the slow foot march to the present era of high-speed automobiles, trains, ships, and airplanes.

The encirclement of some 300,000 German troops in the Ruhr by the United States Army during World War II is an outstanding example of the principle of maneuver.

Mass

The principle of mass means the concentration of combat power to strike an overwhelming blow at the enemy's weak point, so as to destroy him or put him in position for later destruction. This may also be termed the main effort. A small military force usually has but one main effort. Large military forces may have more than one.

The principle of mass means more than the concentration of superior numbers. It also means superiority in firepower, supplies, supporting services, fighting skill, resolution, discipline, morale, and leadership.

The principle of mass is closely related to the other principles of war discussed so far. By concentrating forces, offensive action is undertaken in that area which promises the best chance of attaining the objective.

In May 1943, the President, the Prime Minister of Great Britain, and the Combined Chiefs of Staff met in Washington. At this conference, the final decision was made to launch the attack across the English Channel, while maintaining offensive

pressure on Japan and Italy. For the cross-channel operation, seasoned divisions from the Mediterranean area, with troops from the United States and England and the necessary air and logistical support, were massed in the United Kingdom.

Economy of Forces

Economy of forces is a corollary to the principle of mass. In order to concentrate combat strength in one place, economy of forces must be exercised in other places. The minimum of forces must be used in all places except at the place of the main effort. However, all operations undertaken must contribute to the success of the main effort.

Economy of forces applies also in obtaining balanced organizations during mobilization and in the organization of the theaters, task forces, bases, and other establishments.

High-level considerations as to the relative size of the Army, Navy, and Air Force are an application of the principle of economy of forces. The employment of labor-saving machinery to economize on the use of manpower is another.

In order to mass sufficient strength in the United Kingdom for the Normandy invasion, we economized on our forces in Italy and the Pacific. Troop lists for the Normandy invasion were carefully drawn up and balanced, while troop lists for the Pacific and Italy were thoroughly examined and reduced to the bare essentials. This same consideration was also applied to matériel and equipment.

Surprise

Best results are obtained when the other principles are applied in a manner which achieves surprise. Secrecy of plans, concealment of movements and strength, feints and demonstrations, and rapidity of movement contribute to surprise. Throughout the ages, commanders have consistently sought surprise. They have obtained surprise through resourcefulness and daring and by doing the unexpected.

In this day of the airplane, air photography, and rapid communications, it is often difficult to gain surprise. One of the most effective means is by rapid movement. If we assemble our forces and act quickly enough, we can attain our objective before the enemy can counter the blow.

An example of the application of the principle of surprise, this time achieved by our enemy, was the now famous Battle of the Bulge. Taking advantage of a sector we were holding very lightly because the unfavorable terrain made a winter offensive unlikely, von Rundstedt attacked on 16 December 1944 with 24 divisions. He had been able to assemble his forces in secrecy in the heavily forested terrain because heavy fog concealed the movement of his troops for several days prior to the attack.

Security

Through the proper application of security, the enemy is prevented from interfering with our freedom of action and our employment of the other principles of war. Through security, we try to prevent the enemy from surprising us. Some means for providing security are:

Security detachments, such as advance, flank, and rear guards.

Secrecy of plans, orders, and movement.

Reconnaissance and counterreconnaissance.

Intelligence and counterintelligence.

Concealment and camouflage.

Signal communication security.

Obstacles and fortifications.

Dispersion.

Electronic detection devices.

Rapidity of movement.

At the beginning of World War II, our

first concern was the security of the nation while we prepared to launch our own offensive. Thus, bases such as those in Greenland, Iceland, Alaska, and Hawaii were secured. With the present rate of improvements in range and speed of the modern implements of war, such bases assume greater importance to a nation's security. A policy of close military cooperation and coordination between all countries of the United Nations insures their mutual security and national defense by integrating them on a worldwide basis.

Summary

The application of the principles of war encompasses the whole art of war. Their application to the preparation for war and the direction of war is called strategy. Their application in battle is called tactics. The nine principles of war complement, and are dependent on, one another. Yet in some instances, certain of them overlap or conflict with each other. In any situation, one principle cannot be applied to the complete neglect of others, nor can all principles be invariably employed in their entirety. The application of the principle of economy of forces along a portion of the front, to implement the principle of mass behind the main effort, involves a calculated risk and a possible violation of the principle of security. In a pursuit, maneuver becomes extremely important. In each situation, the relative importance of the nine principles of war must be weighed and then they must be implemented in the degree to which each applies.

New developments in weapons, equipment, and the technique of waging war have resulted in continual changes in the application of the principles of war. They are producing changes at present and will most certainly produce changes in the future. However, the nine principles of war are as basically true today as they have ever been in the past and may be expected to continue so in the future.

The master principle (of war) is sound selection of the aim to be sought and steady maintenance of that aim.

Field Marshal Lord Montgomery

The Japanese Needed Unification

Major Murray F. Gibbons, Jr., *Infantry*

AN IMPORTANT factor assisting the Allies in the defeat of Japan was the inability of the Japanese leaders to anticipate problems and to centralize their organization at a high staff level. Even after these deficiencies were realized, administrative authority was so diffused that an efficient solution could not be reached. These facts may serve as a lesson for us to heed today.

Shipping Was Vital

Shipping was the Achilles heel of Japan. The American sea-air blockade of Nippon was instrumental in Japan's defeat by destroying sea transport. This discussion of the manner in which the Japanese High Command handled their shipping problem emphasizes Japan's limitations in waging a major war. The High Command had neither the physical resources nor the administrative ability to conduct a major war.

As a matter of fact, the Japanese planners did not anticipate war on a vast scale. The desire was for a war of limited commitments, along the lines of the Sino-Japanese and the Russo-Japanese wars. Since the hope of the militarists was for a limited war, their thoughts for planning and organizing were on a small scale.

The Japanese High Command seemed to have a bad habit of reorganizing to meet a problem after it occurred, rather than anticipating it. As early as March 1937, the ambitions of the militarists had made war between Japan and Russia imminent. Instead, the Army clique decided to move against China. They planned and executed the Marco Polo bridge incident near Pekin on 7 July 1937. With this excuse, the Japanese army moved on Hangchow and advanced toward Nanking.

This move involved the destiny of the Japanese nation in a war whose course may be likened to a snowball. At this stage, the snowball, already packed, was started on its downhill roll. From then on, it went faster and faster and grew larger and larger, and the staff planners seemed unable ever to control it or even catch up with it. Even though war was likely in March 1937 and actually broke out in July 1937, it was not until the last weeks of November and December that Imperial General Headquarters (Daihonei) was formed.

General Headquarters

Imperial General Headquarters was organized primarily to handle the China situation. With only internal modifications, the same general organization continued in effect after the United States entered the war, although the tempo and scale of the conflict had become increasingly greater. Actually, this was a general headquarters in name only. It was composed of the Army and Navy General Staffs with the Emperor as nominal head. It had no departments or bureaus combin-

ing the two services, and all decisions had to be concurred in by both Army and Navy Chiefs of Staff. If there was no concurrence, there was no decision. If agreement was reached, orders were issued in the name of the Emperor.

It must be realized that there was never a command relationship between the Cabinet, of which the War Ministry was a part, and the military High Command. Each was constitutionally independent of the other. The War Minister exercised no command function over the Army Chief of Staff.

It is true, in general, that the Cabinet, composed of the various ministers, was dominated by the military extremists, both before and during the war. The Prime Minister, invariably, was either an Army or Navy officer or some individual who met with the approval of these services. The War Minister and Navy Minister were required to be officers on active duty. By refusing to allow its men to assume those positions, the military was always in a position to block the formation of any cabinet or any national issue inimical to its interests. Also, these ministers had the unique privilege of approaching the Emperor directly, which resulted in other ministries being subservient to the Army and Navy Ministries (see Figure 1).

The War Ministry had full responsibility for procurement of military matériel, directed much of the Army's administrative policy, and supervised the many activities connected with supply and service through its subordinate agencies. The Army Chief of Staff, though enjoying constitutional independence, had no command over the War Ministry and had to satisfy his requirements for operational support on the basis of "requests" to the War Minister.

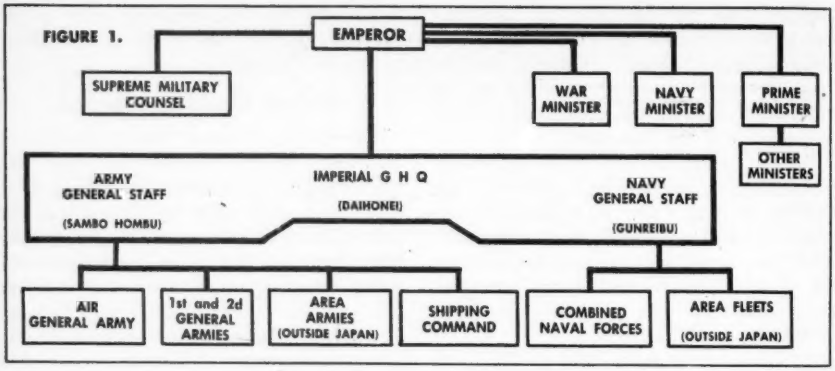
Shipping Transport Command

The Army General Staff, conducting campaigns on the Asiatic mainland, desired control of shipping to support those operations. Even after the China War began, military shipping was handled by the War Ministry under its Department of Army Transportation. With the organization of the Imperial Headquarters in December 1937, an agency known as the Shipping Transport Command was created and all shipping deemed adequate at that time for military needs was operated henceforth by this command.

This, in effect, took a pool of military shipping away from the Cabinet (War Ministry) and placed it under the command of the Army (General Staff). At this time, the Assistant Chief of Staff, 3 Division, at Tokyo was given the title of "Chief of Transportation and Communications." Through his Tenth Section (Shipping), he became the policy maker as regards the use of all military shipping. The commander of the Shipping Transport Command at Ujina, Japan, near Hiroshima, became responsible for putting the policies into effect. Port units, called Anchorage Commands, were set up to handle the sea transport and assembling of troops and munitions to support the field armies in China (see Figure 2).

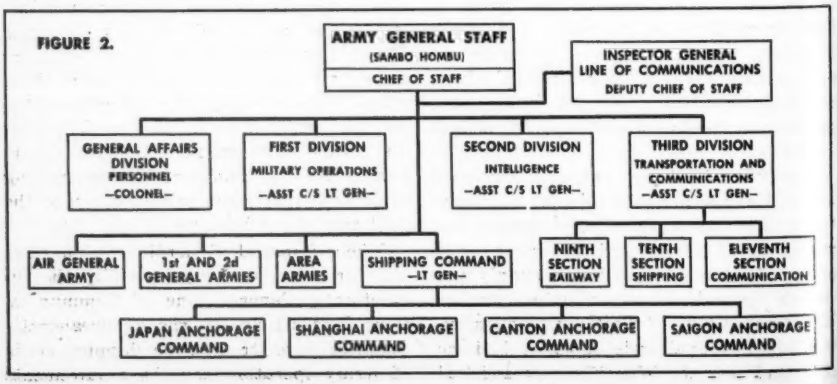
When Imperial General Headquarters was formed, a staff agency called the Inspectorate, General Line of Communications, was set up. It was a bureaucratic compromise to straddle the shipping needs of Army operation and the requirements

Because they failed to anticipate the problems of a major war and to centralize their high command, the Japanese were never able to regain the initiative after their defeat at Guadalcanal at the end of 1942



of the War Ministry. Although military shipping was supposedly turned over to the Army for field operational needs, the Japanese felt it necessary to organize this staff group to bridge the gap at the "coordination" level between Army General Headquarters and the Cabinet (see Figure 3).

Thus, in theory, the Army Chief of Staff controlled military shipping with the advice of his Assistant Chief of Staff, 3 Division. Actual shipping operations were handled by a Shipping Transport Command that had the relative autonomy of a field army and implemented the Chief of Staff's policies as it saw fit. Looming over this set-up was the Inspectorate, General Line of Communications, which was headed by the Army's Deputy Chief of Staff and which was sensitive to pressure from the War Minister. Pressure could be exerted because all requests for additional ships for Army needs to take care of losses had to be submitted to the War Minister. The War Minister, in turn, requisitioned replacement tonnage from the merchant ship pool of the Ministry of Transportation. Since all decisions involving both



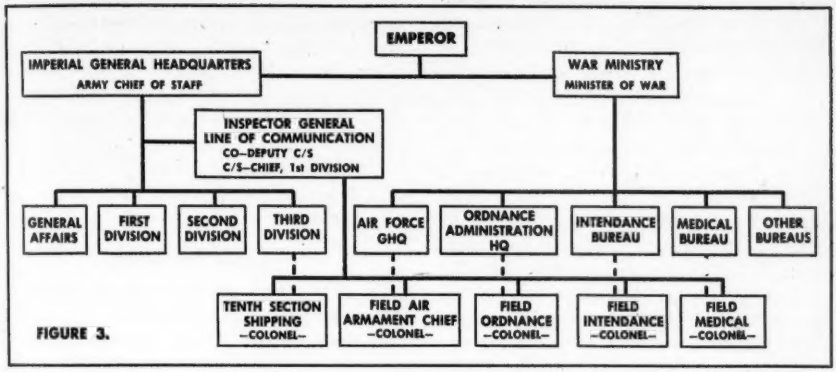


FIGURE 3.

the Army General Staff and the War Minister in regard to shipping had to be on a cooperative basis, this lack of clear-cut control—a characteristic of the Japanese High Staff throughout—was to have vital consequences when a military crisis arose in the fall of 1942.

Pearl Harbor

When the Imperial Navy embarked on 25 November 1941 for the Pearl Harbor attack, the rolling snowball of Japan's destiny received fatal impetus. To paraphrase the words of War Minister Tojo, the time had come for Japan to shut its eyes and leap from the balcony of the Kiyomizu Temple (a temple in Kyoto whose balcony projects far above the valley below). It was anticipated that this bold blow at the American fleet would establish Japanese supremacy in the Pacific. Occupying strategically important islands would establish an impregnable perimeter which would be indefinitely defended. It was felt the raw materials, notably bauxite and oil, would strengthen Japan for the American siege. It was felt that this siege, however, would terminate within 6

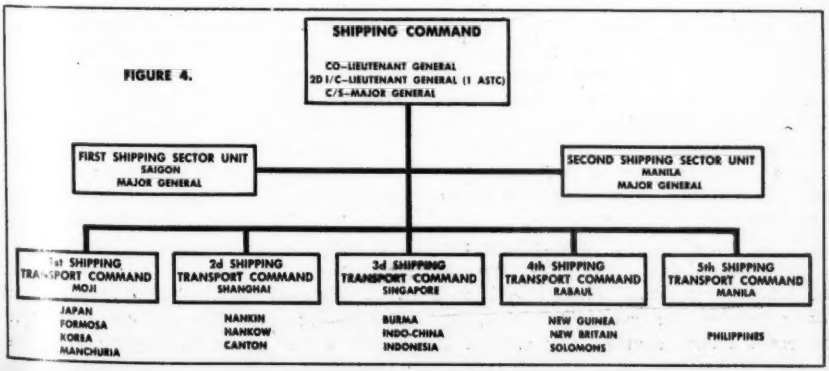


FIGURE 4.

months in a negotiated peace between the United States and Japan when Russia and England were defeated by Germany.

The dispatch with which the initial objectives were attained lulled the Japanese High Command into thinking the measures and means which had made the Southern Area conquest possible were sufficient for the war yet to come. The ease with which Allied outposts were overrun lured the armies in the field to exceed the original plan of a relatively circumscribed Pacific defense ring and to commit forces in New Guinea, the Solomons, and the Aleutians. This led to the defeat of the Japanese Navy in the battle of Midway and to the Indian Ocean reversal. Japanese Headquarters did not seem to realize that these reverses were due to an overextension of their normal support areas. The defeat at Midway was attributed to a deficiency of radar. These actions did not give pause to the Southern Area advance, and troops designated for Midway were simply diverted at Rabaul.

As the field armies were allowed to over-extend with Headquarters approval, no vigorous action was taken by the Cabinet at home to support these and future overseas operations. For the first 11 months after Pearl Harbor, Japan coasted on her economic and military achievements. A few government directives featured the expansion of the armament industry but failed to lay adequate stress on a greater output of shipping. It was not until the latter part of 1942 that the difficulty of the military situation—the burden of heavy supply lines, the inability to defend widely scattered outposts, and the attrition of shipping—was pointed up with apparent unexpectedness.

At the end of July 1942, Japanese ship tonnage was almost exactly the same as the amount on hand when the United States entered the war. That is to say the construction, capture, and salvage of ships had offset losses from sinkings. Complacently deriving satisfaction from such a status, the Japanese were not jarred from their lethargy as regards the critical aspects of their shipping problem until the Allied campaign in Guadalcanal resulted in heavy losses in ships. By then, events had rolled at such a pace that Headquarters was never able to catch up with them.

Shipping Demands

In July 1942, there were two great demands placed on Japanese shipping. The Army General Staff required ships to support its field armies on the far-flung battle perimeter. The War Ministry needed ships to return to Japan raw materials vital to the war industries.

If the authorities in Tokyo were satisfied as to the conditions of the war, the generals in the field were not. During this period, the commander of the Southern Theater Army was making bitter complaints as to lack of shipping to support his operations. With Rabaul as a base, he was attempting to take New Guinea with the Seventeenth Army. Insufficient logistical support was preventing the concurrent development of his second line of advance in the Solomons abreast of his New Guinea drive.

Finally, the Army General Staff reshuffled its shipping organization in July 1942 to the extent of setting up Army Shipping Transport Commands (see Figure 4). These commands were placed over the Anchorage Commands within their respective areas of supervision. They had a dual function. For the purposes of transportation within field armies, a pool of shipping was allocated to the commander of the field army in whose area the commands were located. However, administrative control was retained by the Army General Staff in Tokyo and all ships that moved out of the field army areas to Japan moved under the command of the

When the Japanese lost 11 ships at Rabaul in November 1942, their attempts to reinforce Guadalcanal by transport ended; above, a view of Rabaul taken in April 1946. Below, evidence of the bogging-down of Japan's campaign in New Guinea—Japanese dead on the beach at Buna Mission, 3 January 1943.—US Army photos.

Army Shipping Command, now so designated, in Ujina. Requests for increases in allocated tonnage for these field armies had to go through the Shipping Command; the Inspector General, Line of Communication; the Chief of Staff; the War Minister (for agreement); and the Transportation Ministry (for procurement).

The Inspector General, Line of Communication, continued to function and attempted to adjust the requirements of the Army and the War Ministry. The Inspectorate generally was consulted about tonnage of shipping allocations to various areas. Requests from the area armies in the field were balanced against the ships available and a tonnage assignment was made accordingly. A priority system for the return of raw materials to the home islands was established in conformity with the requirements of the War Ministry.

At this same time, the Army was called upon to establish, under the command of the Shipping Headquarters, two Shipping Sector Units whose functions were peculiarly for War Ministry purposes. The First Shipping Sector Unit was established at Saigon under a major general for the purpose of transporting rice from Indo-China to the Japanese home islands. The Second Shipping Sector Unit was placed in Manila, Philippine Islands, also under a major general, with the primary mission of returning copra, hemp, iron, and copper ore to Japan. The War Ministry was feeling acutely the need for food and for raw materials with which to run the industries necessary to support the new empire.

The Critical Campaign

The reorganization of shipping commands and the release of shipping to armies in the field came too late to be of any use in the critical campaign just beginning. On 7 August 1942, the very day the Japanese planned to send an air contingent from Rabaul to Guadalcanal, United States Marines landed on Guadalcanal. Other reasons may be given for Japan's loss of the Solomons campaign, but the lack of high-level sagacity at this juncture, the necessity for maximum employment of available shipping, and the absence of central authority over shipping to insure flexibility, were great factors in the Japanese defeat.

Despite the loss of the battle of the Coral Sea, the Japanese were caught off guard by the landings of the US Marines. The Japanese had two choices. They could have called off the New Guinea campaign and met the Solomons threat. Or they could have written off Guadalcanal and supported the drive on Port Moresby in New Guinea. Troops, but not shipping, were available for both lines of action.

But the Japanese High Command temporized. It elected to meet the Allied challenge at Guadalcanal and also to continue in New Guinea. The High Command surely must have been conscious of the fact that this course ran the risk of slowing down the New Guinea drive.

By careful organization and the support of the Navy and the Air Force, the Japanese were able to land 30,000 troops on Guadalcanal. However, when 11 ships assigned to the Fourth Army Shipping Transport Command in Rabaul were sunk in November, Japanese attempts to supply Guadalcanal by military transport were ended. Navy cruisers, destroyers, sea trucks, and barges were used, but by late October 1942 it appeared that Japanese forces on Guadalcanal could not win back the island. Imperial Headquarters now decided to divert the 8th Area Army, then in Java, from future use in the New Guinea campaign and to send it to Guadalcanal.

But a new blow fell to upset these plans. Shipping allocations for troop movements to Guadalcanal and for the trans-

portation of the 50,000 men of the 8th Area Army from Java deprived the forces in New Guinea of logistical support. The drive on Port Moresby bogged down with Japanese troops actually in sight of their goal. The Japanese were forced to fall back over the mountains, and the Allies drove over the Owen Stanley range and captured Buna, the Japanese base, on 3 January 1943.

This Allied drive in New Guinea seemed finally to force an admission that both Japanese drives could not be sustained. On Christmas Day 1942, Imperial Headquarters ordered Guadalcanal abandoned. Orders came to the commander at Rabaul to form a defensive line on the Munda-Kolombangara area and to retake New Guinea. In March 1943, a convoy of approximately 21 ships seeking to reinforce New Guinea was virtually annihilated.

If shipping was critically needed to execute the Japanese plans successfully, why did the Army Staff fail to assign more vessels to meet the Allied thrust? As early as April 1942, the Army General Staff had sought allocation from the War Ministry of additional shipping for the support of the Southern Area armies. At this time, the War Ministry was utilizing shipping for its own needs in home waters and the Army Staff urgently sought the release of the necessary shipping. The War Minister refused. Japanese generals insist that the loss of Guadalcanal and the subsequent neutralization of Rabaul, their key base in the Southeast Pacific, was the result of this failure of "cooperation" between the Army General Staff and the War Ministry.

There are varying opinions as to the turning point in the Pacific War. But Guadalcanal enabled the Allies to seize the initiative. As a result, the whole Japanese military machine in the southeast Pacific was thrown on the defensive. The initiative thus seized was never relinquished until American troops landed outside Tokyo.

Lessons

The lessons to be derived from the lack of Japanese centralized command on the highest level are explicit. The United States government has realized in theory the problem which the Japanese did not foresee. It has established a Munitions Board, composed of undersecretaries from each of the three military departments, with the mission of supporting military requirements with materials and weapons. The Board has been made responsible to the Secretary of Defense. The Secretary of Defense also has the "power of decision" in the War Council, which is made up of the Secretaries of Army, Navy, and Air Force, and the three military service chiefs.

The failure of the Japanese War Ministry and General Staff to "cooperate" in their nation's period of strategic crisis should serve as a reminder that there is no place for short-sightedness or "empire-building" among the components of our own government and military services. The needs of national security, viewed as a whole, must come first.

Unification is much more than a matter of organization. It will require new viewpoints, new doctrine, and new habits of thinking throughout the departmental structure. But in the comparative leisure of peacetime, and utilizing the skill and experience of our staff and field commanders who brought us victory, we should start at once to achieve the most efficient instrument of national safety.

President Harry S. Truman

The Army Arctic Indoctrination School

Lieutenant Colonel James L. Collins, Jr., *Field Artillery*
Instructor, Command and General Staff College

A DEPARTMENT of the Army Armed Forces Talk, issued in 1948 under the title "Alaska—Our Northern Outpost," contained the following quotation:

". . . our government is well aware of the tremendous importance of this northern frontier. Alaska commands the Bering Sea and the North Pacific. An enemy who overran our present installations in Alaska would be in a splendid position to invade the mainland of the United States.

"The strategic center of any future global war would very probably be the North Pole. Alaska is the United States base that lies nearest to the Pole. Clearly, then, the destiny of the United States may some day be at stake in the whistling winds and frigid air of our northern outpost."

To insure that the United States Army would be prepared to carry its share in safe guarding "the destiny of the United States" in the Arctic, an indoctrination program to familiarize officers and enlisted personnel with Arctic problems and techniques was instituted. As a part of this program, the Commanding General, US Army, Alaska, was directed to establish and operate the Army Arctic Training Center.

The Army Arctic Indoctrination School is one of the three sections of the Army Arctic Training Center. The Center is organized as the headquarters for Department of the Army personnel who are specializing in arctic training. It consists of the Army Arctic Indoctrination School, the Army Arctic Training Company, and the Test and Development Section. The Training Company is a provisional unit whose mission is to assist in the training of students attending the Indoctrination School, to serve as School troops in field exercises and maneuvers, and to assist the Test and Development Section in its field testing of arms, equipment, and clothing.

The Army Arctic Training Center is located at Big Delta, Alaska. This location is particularly appropriate since it combines the rigorous winter conditions of the arctic interior with the greatest variety of terrain to be found in a similar area anywhere in Alaska. On the Big Delta reservation or in the near vicinity can be found examples of every type of terrain feature to be found in Alaska. The US Army post of Big Delta is about 100 miles southeast of Fairbanks. It lies just south of the junction of the Alcan and Richardson Highways and the junction of the Delta and Tanana Rivers. The post was originally built and operated as an Army Air Force air base. In 1948, the base was officially transferred to the Department of the Army and redesignated an Army post. The Arctic Indoctrination School occupies a cluster of quonset huts and Jamesway shelters located about a mile from the main post and landing strip.

Mission

The mission of the School is as follows:

"To provide officers of the ground arms and services with a sound basic knowledge of arctic conditions to include terrain and weather, survival, movement, logistics,

and minor field operations, and thereby make available a reservoir of leaders and instructors in arctic operations."

To accomplish this mission, the School has an organic faculty of five officers and one NCO. About a dozen enlisted assistant instructors are attached to the School from the Arctic Training Company and the staff of the Training Center Headquarters also assists in instruction.

The officer instructors are veterans of extensive arctic experience and have themselves encountered most of the situations that the soldier might find in the far North. The enlisted assistant instructors have all had extensive cold weather experience and are well versed in the techniques of survival under conditions of extreme cold, and in small-unit winter operations.

During the winter of 1948-1949, the Arctic Indoctrination School conducted

The Army Arctic Indoctrination School, one of three sections of the Army Arctic Training Center at Big Delta, Alaska, has the mission of providing ground officers with a sound knowledge of arctic conditions

two courses, each of 4 weeks duration, during January and February. The student body was composed of 75 officers from the United States, including several Navy and Air Force representatives, and about 25 officers and selected enlisted men from the Alaskan Command.

Training

All instruction emphasizes that only by utilizing proper training and the proper equipment can troops operate successfully in extreme cold. An example of the lack of proper equipment was the Attu invasion. By far, the greatest number of casualties occurred not from Japanese action but from a more silent and more relentless enemy—the cold. However, in addition to having the proper equipment, the soldier must learn its proper use. Ignorance and neglect of equipment will have far more serious results in extreme cold than in temperate climates.

One of the most important phases of Arctic training is the psychological preparation of the soldier. He must come to understand and to lose his fear of the cold. Persons unfamiliar with snow and cold will often picture conditions as unbearable. If unchecked, the fear of the cold can demoralize an organization. When this occurs, individuals get careless and indifferent, thus inviting frostbite and trenchfoot as well as damage to equipment. There is no quitting in the cold. Men must be trained to carry on and to be familiar enough with cold to know what to do. The School proves to the students that there is no "bugaboo of the Arctic" by having them live and operate in the open with only a minimum of equipment.

As important as the psychological is the physical preparation of the soldier for operations in the Arctic. Normal means of transportation are limited, if not nonexistent. This means that the soldier must be trained to operate with a minimum of transportation and equipment. He must move on his skis or snowshoes and backpack most of his personal equipment. This requires a high degree of physical fitness as well as skill in the use of skis and snowshoes. The school combines its regular practical work with over-snow marches to impress on the students the necessity for good physical condition as well as to teach the essentials of skiing and snowshoeing.

Terrain and Weather

The study of Arctic weather and terrain is conducted both on the ground and in the classroom. Movies and slides showing various typical areas of the Arctic are

Indoctrination in Arctic problems includes use of special equipment and natural resources. Above, building a lean-to.

Above, M29C "Weasels" and a man-powered sled; below, an experimental sled for hot C rations and coffee.—US Army photos.

shown. The varied terrain at Big Delta is available for firsthand observation, and the local weather is typical of the continental interior. Arctic soldiers must become familiar enough with winter conditions to anticipate weather changes and to foresee snow and ice conditions. All of these will affect vehicle performance as well as individual ability to move and maneuver. This ability to foresee the weather and its attendant changes in terrain trafficability comes mostly from experience. However, if an individual is properly guided, the time required to gain this experience can be greatly reduced.

Survival

Survival in the Arctic is largely a matter of keeping warm and fed. Survival training stresses the necessity of always looking ahead and *not allowing* yourself or your unit to become cold or hungry. When operating tactically in winter, the soldier's only source of heat is his body. This heat results from the burning of food by his body. The intake of food must be increased in the Arctic to compensate for the greater heat losses. This requires forethought on the part of commanders to insure the continued availability of food. A day's ration missed in temperate zones may be no more than an annoyance. In the Arctic, it may be the difference between life or death.

Body heat must be conserved to the greatest extent possible. Unfortunately, body heat is a moist heat, and moisture is a good heat conductor. When moisture is present in the clothing, body heat is rapidly dissipated and the soldier becomes cold. The biggest problem faced by soldiers operating in extreme cold is perspiration. The soldier must learn to keep it to a minimum and learn how to dry his clothes when they get damp.

The School emphasizes the commander's responsibility for achieving a much higher degree of discipline in his unit than is

Officers of the ground arms and services are trained in the problems of arctic operations at the Army Arctic Indoctrination School, which is located at Big Delta, Alaska. Above, School students are organizing a defensive position. Below, a group of students are in formation and ready for the start of a snowshoe march.—US Army photos.

necessary in temperate climates. Junior officers and NCO's must be continually alert to keep their men from overheating. However, the individual soldier must be sufficiently self-disciplined to loosen or remove his own outer garments *before* he becomes overheated. The School stresses the necessity of keeping *comfortably cool* at all times.

The utilization of nature's resources is an important aspect of the survival instruction presented at Big Delta. The comforts that can be obtained from the forests are limited only by the time it takes to build them and the working knowledge of woodcraft of the individual. Therefore the School teaches woodsmanship, Indian lore, and even Boy Scout tactics. In the Arctic, an axe or a snow knife are sometimes as important to a soldier as his rifle. Throughout, the exercise of personal initiative and ingenuity is stressed. The construction of lean-to shelters and snow-cave shelters is practiced by the students, while the more intricate task of building an igloo is demonstrated by experienced instructors. The snaring and trapping of small game, as well as the technique of fishing through the ice, is learned by practical work and by observing movies of Eskimo methods.

Movement

Movement across snow is stressed at the School. The capabilities and limitations of available vehicles are demonstrated and future trends are discussed. Students are given a comprehensive course in the operation and field maintenance of the M29C or "Weasel." This vehicle, being an amphibian, can be used to transport personnel and supplies over streams and swamps in the summer as well as over deep snow in the winter. Over easy terrain, a dozen skiers can be towed behind each vehicle. By this means, troops can be moved relatively long distances with a minimum of fatigue to the men.

As previously mentioned, skiing and snowshoeing are also taught. A well-trained arctic soldier should be skilled in the use of both skis and snowshoes and be adept in choosing and using the one most suited to the situation. In deep snow, a soldier is helpless without one or the other of these aids.

The use of dog teams is demonstrated at the School, but their use must necessarily be limited to small operations. It has been calculated that in order to supply a company of infantry for 10 days from a fairly close supply point, 900 dogs are required. Any such large-scale use of dog teams is obviously not practical.

Logistics

The great quantities of supplies required, the very limited road and rail net, and the difficulty of cross-country movement conspire to make arctic logistics a very difficult problem. In fact, logistics will probably be the limiting factor, rather than the availability of means, in any arctic operation.

While air supply will undoubtedly have to play a large, if not major, part in the logistic support of any operation, the flying conditions in the Arctic are rugged to say the least. Long distances, difficult terrain, high winds, snow, and cold are merely a few of the many problems that have to be overcome. The Indoctrination School points out these problems for the consideration of future planners and ground commanders.

Conclusions

The Army Arctic Indoctrination School is providing valuable training in a subject of which little is generally known. Many problems of arctic warfare are yet to be solved. The School, by presenting this training and by posing the problems of arctic warfare, is broadening the base of professional education throughout the Army.

The Army Tactical Information Services

Captain John S. D. Eisenhower, *Infantry*

WORLD War II in Europe was a war of great mobility and surprise. It was also a war which required the utmost in split-second coordination between ground forces and air forces. These characteristics made it necessary that all echelons of command, up to and including army group, be supplied with the very latest detailed tactical information of the front lines.

It soon became apparent that in a fast-moving situation normal command channels were not adequate to keep higher commanders sufficiently informed. News was slow in reaching high headquarters and it was often too lacking in detail. This was brought about by two principal factors:

1. Staff officers, even though instructed to inform the next higher headquarters of all happenings, were often so busy with other duties that it was impossible for them to pay full attention to sending information.

2. In an extremely fluid situation, it was often impossible to keep wire communications open between a corps CP and, say, a rapidly-advancing armored division.

Accordingly, commanders on various fronts devised units to supplement (not replace) normal channels of communication. There were many of these units. The British Forces had the "Phantom" and "J" Services.* The American Forces had four Signal Information and Monitoring (SIAM) Companies and the 3d Army Information Service. The basic usefulness of these units lay in two characteristics: a tightly controlled radio net with a highly secure code, and singleness of mission of personnel actually sending information. Since there were so many different units performing the same general mission, let us call them collectively the Army Tactical Information Services (ATIS).

Phantom

As early as 1939, during the battle for France, certain officers of the British Expeditionary Forces became aware of the need for a command channel supplement. They found a ready answer in the expansion of the "Hopkinson Mission," a tiny air-ground liaison patrol which had been using radio to speed tactical information from lower staffs to higher headquarters. The patrol was rapidly expanded and eventually became the "GHQ Liaison Regiment," known by the codeword "Phantom." It soon spread to serve British units everywhere and was used extensively by the Americans on a loan basis.

US Information Services

The American ATIS units (the SIAM Companies and the 3d Army AIS) could be considered as field expedients so far as

* "J" was later incorporated into the "Phantom" Service.

The ATIS, American equivalent of the British "Phantom" Service, was developed and successfully used in World War II to speed up the flow of tactical information to higher commands in fast-moving situations

the ATIS mission was concerned. All had had other missions to perform before being given this one. Generally they patterned their ATIS operations after the older Phantom. By D-day in Normandy, none of these US units was ready to begin operations, so 21 Army Group sent Phantom patrols to link US V Corps and VII Corps to it. Later, patrols from Phantom linked all US Corps in 12 Army Group to 21 and 12 Army Groups. These patrols remained with US Forces until VE-day. The

Organization	Served
Phantom (Br)	BEF 1939, Dieppe, North Africa, Sicily, Italy AEF 1944-45 (Br and US)
J (Br)	Br 8th Army, AEF 1944-45 (Br units only)
3d US Army AIS	3d US Army, 1 August 44—16 December 44 (Temporarily converted cavalry unit.)
3351 SIAM Co.	5th US Army in Po Valley
3326 SIAM Co.	7th US Army 15 Sept 44—8 May 45
3323 SIAM Co.	1st US Army 13 April 45—8 May 45
3325 SIAM Co.	3d US Army 13 April 45—8 May 45

Figure 1

operations of the major ATIS units are shown in Figure 1.

Operational Methods

All the ATIS units, British or American, operated in approximately the same manner. In every case, the unit headquarters was located at army or army group.* A similar, smaller detachment was found at every subordinate level. At division level, a patrol of about one officer and six enlisted men obtained, encoded, and transmitted messages of tactical importance to be picked up simultaneously at all higher levels. Thus the army group, army, and corps commanders were all informed by the same radio message sent from division.

The place where some units varied in their operations was in the manner of obtaining tactical information. To begin with, none of them obtained information from their own reconnaissance. Most of them obtained it through personal contact between patrol officers and division G-3 sections, but the J Service, and to a certain extent two of the SIAM Companies, used the method of monitoring friendly command radio nets. There was some disagreement at the close of the war over the relative merits of the two methods, but the Theater General Board, USFET, and the 12 Army Group Liaison Detachment (SIAM) concluded that the monitoring of command nets, for our purposes, is impractical.

Relations between Division Staffs and Attached ATIS Patrols

It has been stated that the main mission of the ATIS unit was to obtain information from the front and send it to higher headquarters as quickly as possible for the benefit of the higher commander. In performing this main mission, ATIS patrols were able to perform secondary missions of great value to subordinate staffs. One of these secondary missions was to aid in maintaining liaison between adjacent divisions and corps. This it did by insuring that all messages that went up also went to adjacent or similar units and, occasionally, by communicating directly with the patrol at a specific flank division. This activity was possible only through the use of the one-time pad code, of which the only danger of compromise lay in the possibility of a pad falling into enemy hands. Each corps used a separate edition of the pad. By issuing the pad of each corps to the flanking corps and divisions, the ATIS made possible this sideways exchange of messages (see Figure 2).

A second service to division and corps staffs was the providing, every morning, of a situation report of the entire front as it had stood the night before at 2400. This situation report, prepared at ATIS

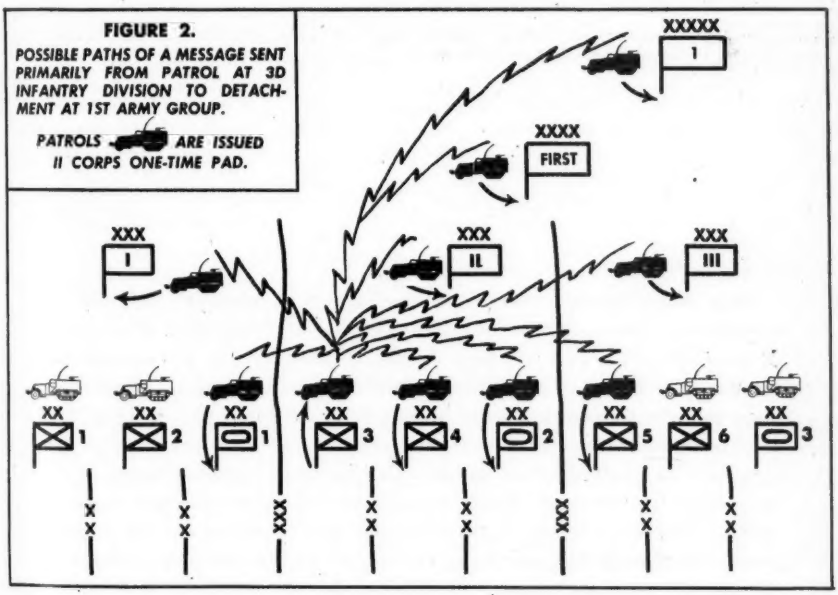
* British Phantom and J served army group. US units served army.

headquarters and transmitted during the night, was of great interest to units at all levels, particularly during a fluid situation.

Division and corps G-3s were sometimes somewhat less than delighted when an ATIS patrol was first attached to their headquarters. The patrol officer himself was often looked upon as a mild form of "Gestapo" agent sent from higher headquarters to spy on the performance of the staff. This understandable suspicion was soon allayed when the G-3 realized that the patrol officer had strict orders to send no operational message not checked and approved by the G-3 or a member of his section. Provided the patrol officer was alert and intelligent, and provided he had been well trained in his job, the staff soon learned to appreciate the benefits which could accrue to them through proper use of the patrol.

The ATIS mission with the SIAM units was sometimes hampered by a split command set-up. Although the ATIS mission was designed primarily to serve the various levels of G-3, the SIAM Companies were responsible in the final analysis only to the army signal section. Indeed, ATIS was only one of the missions performed by these SIAM Companies. The result was an unfortunate "control by request" on the part of G-3, to the occasional detriment of the ATIS job. One instance, perhaps not typical, was flagrant. In the last days of the war, a corps G-3 wished to attach an available SIAM patrol to a new armored division about to make a long attack on Pilsen. Although the G-3 was particularly anxious in the matter, the patrol officer at corps was unable to induce the SIAM company commander at army to attach the patrol, with the result that the G-3 went needless hours with no information

FIGURE 2.
POSSIBLE PATHS OF A MESSAGE SENT PRIMARILY FROM PATROL AT 3D INFANTRY DIVISION TO DETACHMENT AT 1ST ARMY GROUP.
PATROLS ARE ISSUED II CORPS ONE-TIME PAD.



on that armored division. For best results, the General Board, USFET, concluded that the ATIS units should be single-mission, separate units, possibly controlled administratively by G-3.*

Future of ATIS

It is to be expected that the Army Tactical Information Services will be even more important to the command scheme in any future war than they were in the past one. Greater emphasis on airborne operations, greater mobility of ground units, and greater dispersion of units to avoid the effects of powerful new weapons will all render normal communications channels more inadequate than ever in keeping the higher commander informed. Assuming that ATIS units in some form are here to stay, it will become necessary that all future commanders and staff officers be acquainted with the purpose, capabilities, and limitations of ATIS. Only through intelligent handling can the Army Tactical Information Services perform with maximum efficiency their mission of keeping all commanders, at all levels, apprised of the tactical situation.

* Report, Committee 34, General Board, United States Forces, European Theater. Conclusion d., and Appendix 1, par. 2.

The cost of modern research and development is fabulously high and is increasing as technology becomes more complicated. Where most of the cost of research in the past has been carried by industry and private philanthropists, the burden of financial responsibility now rests upon the government and the taxpayers. It will always be a problem to persuade the taxpayer that the cost is a necessary expenditure. Also, the question is submitted as to whether this or any other country's economy can support the cost of the sustained conflict which might utilize, for example, the extremely expensive weapons of the often predicted "push-button" war of the future. Because of the necessity of holding costs down, and fully evaluating the end results of our efforts, it is essential that our research and development programs in this country be subjected to alert review in order to preclude the possibility of producing end items unrealistic to the capabilities of the nation's economy.

Major General Anthony C. McAuliffe

*Civil Functions of the Army in the Occupied Areas**

The Honorable Kenneth C. Royall, Former Secretary of the Army

WAR'S end vested with the United States Army an occupation task of large administrative scope and complexity. Today, in Germany, Austria, Trieste, Japan, Korea, and the Ryukyu Islands—areas widely separated both by distance and tradition—the American Army has the mission of administering or supervising the affairs of 150 million former enemies and foreign nationals.

The over-all objective of this mission, as established by international agreements, surrender instruments, and policy directives to the military commanders, is to establish peaceful and responsible communities which never again will constitute a threat to the peace of the world.

Military necessity requires, in the conduct of operations as well as in the fulfillment of obligations imposed upon invading forces under international law, that such forces institute control of civilian affairs by military government or otherwise in the occupied or liberated areas. The rules of international law and the established customs of war provide the authority for the control by civil affairs/military government (CA/MG), and the exercise of such control is assumed by the occupation of an area by force or agreement. The theater commander bears full responsibility for CA/MG. Therefore, he is designated as military governor or civil affairs administrator, but is authorized to delegate his authority and title, in whole or in part, to a subordinate commander. In occupied territory, the commander, by virtue of his position, has supreme legislative, executive, and judicial authority, limited only by the laws and customs of war and by directives from higher authority. Initially in an enemy territory, strict control is necessary if the objectives of military government are to be achieved. As conditions approach normal, the control exercised by CA/MG may be relaxed. The supervision of the occupying force may become less direct and supreme authority may finally be released to a recognized power. The control, exercised by the occupying force varies according to future military operations, current military, political, economic, social, and other pertinent factors.

Three years after the end of a global war, we still are engaged in the burdensome but all-important clean-up job in Germany and Japan. The Army's accomplishments, in its effort to achieve the occupation objective, must now be

* From the Annual Report of the Secretary of the Army, 1948.

Since the end of World War II, the Army has been engaged in a vast occupation task; in Europe, Asia, and the Pacific, 150 million former enemies and foreign nationals are being administered and supervised

judged in the light of the world political situation. The difficulties faced today could not necessarily have been foreseen, for many of the problems marking the occupation are not of indigenous origin—do not spring from the occupied territories or from their peoples. They stem from the ideology of one of the occupying powers whose own homeland is so extensive that it nearly touches Germany on the west and Korea on the east.

We will never know how much more rapidly we could have proceeded in preparing Germany and Japan to take their places in the world family of peaceloving nations if all the occupying powers had sought this main objective and had worked in harmony. But we do know that if such had been the case, then, during the past year, our troops could have been withdrawn from Austria, Trieste, and Korea, and the "Berlin Blockade" would not be a day to day threat to the peace of the world.

The Army's record, in the face of existing conditions, is one in which our oversea commanders, the personnel under them, and the whole Army can take pride.

Occupation is an expensive business. By 1 November 1948, the cost to the American taxpayer had exceeded 2.5 billion dollars for government and relief in occupied areas. The cost to troop pay and maintenance (exclusive of the sizable indirect costs in the zone of interior required to support an army of occupation) has risen beyond 4.5 billion dollars, and, in addition, expenditure for economic rehabilitation projects has amounted to over 42 million dollars.

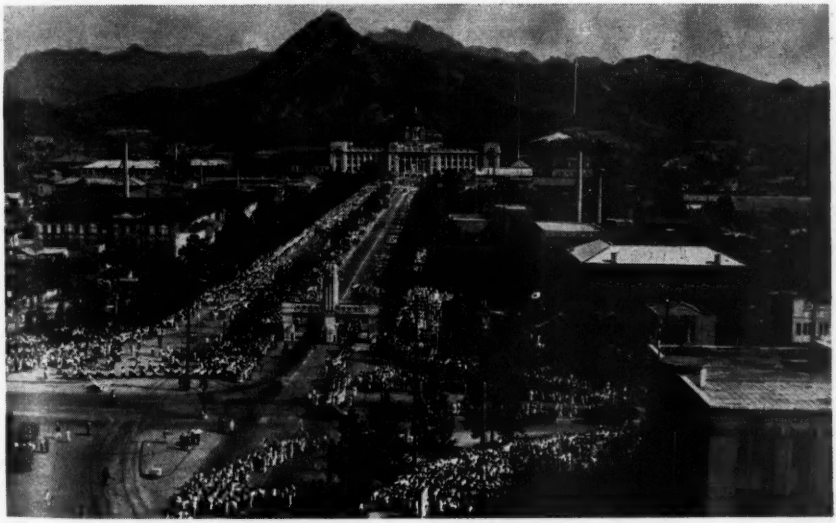
These expenditures are not solely for a great humanitarian purpose. They were originally designed—and still are—to avert famine, disease, and unrest, which otherwise would have spread chaos and human suffering in the former enemy countries and would have left the world in tumult and misery.

Since the military occupation of enemy territory suspends the operation of the government of the occupied territory, the obligation arises under international law for the occupying force to exercise the functions of civil government looking toward the restoration and maintenance of public order. Control and supervision of the various occupied areas are maintained by different types of organizations. Though all areas receive direction from the Joint Chiefs of Staff, the United States Army Chief of Staff acts as executive of the joint chiefs for transmitting direction to occupation commanders. The Civil Affairs Division is the staff division primarily responsible to the Chief of Staff for military government matters. The Civil Affairs Division and the work done under its direction are supervised closely by Under Secretary of the Army and the Assistant Secretary of the Army, who confer with the Secretary on questions of policy.

There is, of course, a pronounced interdependence of the Department of the Army and the Department of State in matters of occupation policy-making. Consequently, a close working relationship is maintained, primarily with the Assistant Secretary of State for occupied areas. As the top policy agency of the United States Government in the field of foreign affairs, the Department of State looks to the Army for guidance with respect to military implications of foreign policy as well as with respect to the administrative implications of any governmental policy to be executed in the occupied areas. Both Departments turn to other Federal agencies for technical guidance when occupation policy enters another agency's field of competence.

Control in Germany is divided into four zones of occupation and the city of Berlin, which has four sectors. The United States military governor in Germany, Gen. Lucius D. Clay, is also commander in chief,

European command.* According to international agreements, each of the four occupying powers exercises control in its own zone and participates in a quadripartite Allied Control Council on matters involving all of Germany, so that according to these agreements, Berlin is under quadripartite control of the Allied Kommandatura. According to the terms of the Potsdam Agreement, the occupying powers were to treat Germany "as a single economic unit." This objective has not been achieved due to the intransigence of the Soviet Union. The United States government, hoping to effect quadripartite economic unification, offered to join its zone with any or all other zones for the purpose of economic control. The British government accepted the offer, and late in 1946 the economic fusion of the United States and United Kingdom zones was completed. More recently, steps were taken to join all three western zones into a single political and economic entity, with a considerable measure of self-government, but with certain matters such as foreign trade, foreign exchange, and foreign relations reserved to the control of the occupying powers.

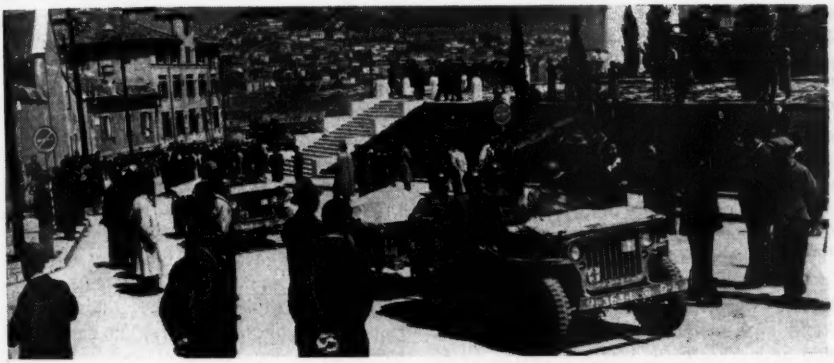


The new Korean government was inaugurated at Seoul on 15 August 1948. US troops have remained in the new nation while local security forces have been trained and equipped.—US Army photo.

The basic zonal division of Austria is very similar to that in Germany. However, Austria, a "liberated" rather than a "conquered" nation, has its own constitutional federal government. Control in Austria is exercised by the Allied Control Council through the Austrian government rather than by military government decrees in the separate zones. The Department of State is primarily responsible for formu-

* John J. McCloy has been named U. S. High Commissioner and Lieutenant General C. R. Huebner designated Acting Commander in Chief, EUCOM, since General Clay's retirement in May 1949.

In Japan, the occupation forces function largely as a supervisory and inspecting agency. Above, troops of the 81st Division marching through Hirosaki in 1945, shortly after their arrival for occupation duty. Lower left, an Army sergeant supervises a school board election in 1948. Lower right, a management-labor conference in Tokyo, 1949.—US Army photos.



In Europe, the Army has a big occupation task in Germany, Austria, and Trieste. Above, US troops are shown as they arrived in Trieste on 6 May 1945 for occupation duty. Right, a group of German officials meet in Frankfurt in 1949, prior to leaving for the US to study budget methods employed in America. Below, a picture taken in 1948 shows a Soviet traffic check point in Berlin, where traffic moving to and from the Western sectors of the city is being inspected near the US-British-Soviet sector boundaries. Germany is divided into four zones of occupation and four sectors in the city of Berlin.—US Army photos.

lation of policy matters pertaining to the occupation of Austria. It maintains a Minister to Austria who also serves as political adviser to the United States High Commissioner. The Department of State and the Economic Cooperation Administration provide the High Commissioner with guidance on civilian supply and economic assistance. The responsibility of the Army concerning political matters in Austria is one of cooperation generally to further the welfare of Austria. However, in the reserved fields provided for in the Four-Power Agreement with Austria, the Army as a member of the Allied Commission acts directly in matters having to do with the demilitarization, the security of the Allied forces, and restitution of property.

The Free Territory of Trieste is divided into two zones. Control in one zone is the responsibility of Jugoslavia. In the other, control is exercised by United Kingdom-United States military government. The UK/US commander receives instructions from the Combined Chiefs of Staff, with general policy guidance from the United States Department of State and the British Foreign Office. Since efforts to place this territory under a governor appointed by the United Nations have been unsuccessful, it has been proposed by the United States, United Kingdom, and France that Trieste be returned to Italy. This proposal has not been favorably received by Jugoslavia or Russia.

Control in Japan is exercised by General of the Army Douglas MacArthur, the Supreme Commander for the Allied Powers (SCAP), representing 11 powers which participated in the war against Japan. SCAP has complete authority within the framework of basic policy as established by the Potsdam declaration, the basic post-surrender policy for Japan, the basic initial post-surrender directive to SCAP for the occupation and control of Japan, the policy decisions of the 11-nation Far Eastern Commission which meets regularly in Washington, and the United States government directives prepared by the State-Army-Navy-Air Coordinating Committee (SANACC), formerly State-War-Navy Coordinating Committee (SWNCC). SCAP exercises this authority through the constitutional government of Japan by issuing directives to that government, by maintaining surveillance over legislative, executive, judicial, and administrative functions of that government, and by acting in an advisory capacity to it. SCAP consistently has refrained from direct administration of the government and has functioned more as a supervisory and inspecting agency. At the local level, the military government teams of the United States Eighth Army are responsible for surveillance of Japanese execution of SCAP's directives. As Commander in Chief, Far East (CINCFE), General MacArthur is responsible directly to the Department of the Army as executive agent of the Joint Chiefs of Staff for such military aspects of occupation as maintenance of order and other matters involving the interests and security of the United States.

United States Army responsibility for military government in Korea has applied only to the area south of the thirty-eighth parallel and has been exercised under the direction of the Commanding General, United States Army Forces in Korea, (CG, USAFIK). This responsibility has been implemented through the United States Army Military Government in Korea (USAMGIK) headed by a Military Governor. After many endeavors to reach agreement with the USSR, which occupies the area north of the thirty-eighth parallel, for a democratic government for all Korea, the United States referred the problem to the United Nations. The United Nations Temporary Commission on Korea was established and in May 1948 observed democratic elections in South Korea which led to the establish-

ment of the Korean government on 15 August 1948. USAMGIK was deactivated and a civil affairs section created as a USAFIK staff division to implement the transfer of authority to the new Korean government. The United States Army continues to be responsible for the maintenance of order in South Korea until such time as the Korean security forces will have been sufficiently equipped and trained.

The Ryukyu Islands are governed by the Army in the name of the United States alone. Local government has been established and plans made for a wider range of self-government. The future of the Ryukyu Islands will be settled by international agreements.

During the immediate postwar period, implementation of United States policy in occupied areas, particularly in Germany and Japan, was largely devoted to disarmament; demilitarization; removal from positions of influence of leaders responsible for policies of military aggression and national aggrandizement and racism; elimination of war potential; and prosecution of war criminals. The start of fiscal year 1948 saw all of these programs virtually completed with a good measure of success.

The number of persons in the United States zone of Germany against whom denazification trial proceedings had to be completed was only 32,372 at the end of August 1948. The backlog of appeals had been reduced to 28,813 and there remained only 2,144 internees in enclosures, of whom 1,127 were serving sentences imposed by the Denazification Tribunals. German personnel engaged in denazification activities were reduced 12 percent to 15,498 by the end of the month.

Gradually, the emphasis of occupation has shifted to a more positive phase—to programs of long-range development which seek to establish sound political, social, and economic institutions. This is especially true in Germany where western German economy holds the key to the success of the European Recovery Program (ERP). Western Germany's phenomenal economic improvement under military government programs, now integrated with the ERP, points the way to stability and economic well-being for all western Europe, of which it is a part. The Department of the Army has proposed, and the Congress approved in principle, a recovery plan which will broaden the present relief program in Japan. The program will be handled by the Army under General MacArthur.

The Army repeatedly has urged that because of the politico-socio-economic character of present-day military government, the occupation assignment is one in which the military should retain only the police role. Although State Department-Army plans were nearly completed to transfer administrative responsibility for Germany to the Department of State at the end of the fiscal year 1948, the President, on 23 March 1948, decided under conditions then existing to postpone the transfer indefinitely. Thus, the fourth year of occupation commences with the Army continuing to perform these necessary administrative tasks, but willing to agree that "this is not a job for soldiers."

Germany and Japan do not yet possess the vigorous economy essential to promote the growth of democracy. As we continue to plant democratic seedlings, our attention should turn to proper economic nourishment and care. We can no more afford to risk Japan's and Germany's deterioration economically, with the consequent retardation of integrated world recovery, than we can again risk having the economic potentials of those countries directed into war-making channels. The Potsdam and Yalta agreements cover both contingencies for both of these aggressor nations. A sane and self-supporting Germany and Japan must share in the sound economy of a world politically at peace and peacefully at work.

THE NEW G-2 SECTION

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ANYONE who had much business that brought him to a division or higher headquarters, back in World War II, probably noticed that the G-2 had a lot of extra people at his beck and call. These people were extremely useful in getting a job of intelligence done. There were the interrogators, who spoke the enemy language fluently and had been trained to extract information from prisoners. There were the photo interpreters, who could make an aerial photograph tell a whole story. And there were others who were not so conspicuous or well-known, such as interpreters to work with Allies and translators to handle documents.

What most people outside of intelligence circles did not notice, though, was that there were many very difficult problems in handling these specialists due to the organization in effect at the time. These specialists did not "belong" to a tactical unit; they were not part of its Table of Organization. Instead, they belonged to small, independent teams which were attached to tactical headquarters. The administrative troubles of such a system are obvious, and there was a morale problem, too. Too frequently, these small teams were made to feel that there was no one interested in their welfare.

The reason we got ourselves into this situation is easily explained: inexperience. It was not just inexperience in the functions these specialists were to perform, but inexperience in all fields of intelligence. In nearly all of our tactical units there was:

—no one who could perform these specialized functions.

—no one who knew how to train anyone to perform these functions.

—almost no one who knew how to use specialists trained in these functions.

There are countless illustrations of this inexperience, or downright ignorance, in the early days of the war.

Photo interpreters were confused with photographers and assigned to the Public Relations Officer. Translators were assigned as truck drivers and detailed to haul rations. Interpreters were given to headquarters commandants to assist in the effort to supplement the GI rations. Prisoner interrogators were made mess attendants. (The World War I major who ate the messenger pigeons had plenty of company!)

The only possible solution to the training problem was to handle it centrally, at one location, where the few experts we could find could do some good. This was done with the creation of a Military Intelligence Training Center, and our specialists soon began to appear in adequate numbers.

The problem of misuse was a little different. The obvious solution, to educate the commanders and staffs, was all

right for units that had not completed their training. But a large number of units were already fighting and had too many problems on their minds that were considerably more important. The next best solution, then, was to organize these specialists into small units. This organization into a team, complete with title, equipment, and commander, gave the individual much more protection against misuse. Once the specialists had a chance to show what they could do, the tendencies to misuse them were greatly reduced.

By the end of the war, most commanders and staff officers knew what these specialists were for, knew how to use them, and had forgotten that there was ever a time when such knowledge was conspicuous by its absence. Also forgotten, naturally, were the reasons for the team organization. As knowledge of how to use the specialists grew, the need for the team organization decreased.

So, today, we have a major reorganization of our methods of handling the intelligence specialist.

First, and most important, each major tactical unit (division and higher) is given, as part of the T/O of its own headquarters, the intelligence specialists that it would normally use throughout an entire major campaign. This includes those specialists who need no knowledge of any foreign language, such as the photo interpreters and the order of battle clerks, and also those who need to speak only the language of the enemy (and English, of course), such as the prisoner of war interrogators.

This change has actually appeared in T/O&E 7-IN (7 July 1948). It will be incorporated in the tables for corps and army headquarters when the next revisions of these are published.

This takes care of certain specialists, in normal quantities, but it does not provide for many other specialists. It also does not provide for reinforcements in special situations. For these cases, the team system will still be used. But it will be a better organized team that will be an improvement over our World War II efforts.

T/O&E 30-600, 20 October 1948, outlines the framework of this new system, which is called the Military Intelligence Service Organization. In general, three types of specialist services are provided for: administration, intelligence language skills, and intelligence skills that do not involve languages.

The administrative services fulfill three general functions. First, they provide a control system within each major unit headquarters and also within an entire theater of operations. The theater-wide control not only permits more efficient utilization of the specialists but also, by giving the specialist teams a "parent" headquarters, it allows promotion within the Military Intelligence System and counteracts the "orphan" complex that was common in the war. A control unit may also be furnished to a tactical headquarters if the number of attached intelligence specialists warrants. Second, the administrative services provide mess, clerical, supply, and auto maintenance personnel where the intelligence specialists cannot be cared for by the tactical unit to which they are attached. Third, technical assistants to the intelligence specialists are

The new Military Intelligence Service Organization corrects many G-2 problems of World War II and provides three types of specialist services: administration, linguist skills, and non-linguist skills

provided, such as microphone and recording technicians, document handlers, and specially trained guards.

The linguist specialists are those that we had during the war: interrogators to question prisoners, interpreters to deal with Allies, and translators to translate any foreign documents into English. An additional documents specialist, who combines a reading knowledge of a language with ability to analyze information, has been added. Whereas the translator is just a "machine" for converting from one language to another, the document specialist is expected to read a foreign document and pick out any items of military significance. The interrogators provided by the Military Intelligence Service Organization are in addition to those organic to a unit, but the MIS translators, interpreters, and documents specialists will be the only ones that any unit will have. The reason for this difference in handling is due to language difficulties. Normally, a unit will encounter only one enemy language in a major campaign, but it may in the same period encounter four or more Allied, friendly, or neutral languages. Thus, the assignment of an interrogator can be fairly permanent, but the employment of other linguists is usually too brief to warrant anything but temporary attachment.

The non-linguist specialists include our old acquaintances, the photo interpreter and the order of battle specialist, and two new ones: the technical intelligence coordinator and the editorial specialist.

The technical intelligence coordinator provides that necessary link between the technicians or scientists, on the technical service intelligence teams, and the staff officer. Too often, during the last war, the effective employment of our technical intelligence teams was seriously hampered by the lack of understanding between team member and staff officer.

The assignment of an editorial specialist will probably be fully understood and appreciated by those who had to read some of the more labored reports that were produced. The clever staff officer almost always begged, borrowed, or stole some officer with writing experience just to write and edit his section's reports. Provision of this editorial specialist legalizes the practice for G-2.

The entire MIS organization follows the comparatively new "cellular" idea of organization. No complete units are provided for in the T/O, but rather small operating groups, which may be combined in any of many ways to form exactly the kind of intelligence organization that is required at a particular place and time. Also, there are several types of cellular units adapted to use at the various levels of command. This not only provides specialist teams that are better suited to each of the tactical levels, but also provides a possibility of promotion for the intelligence specialist. In our old system of small, equal, independent teams with no central control, there was no possibility of any advancement for the intelligence specialist within his specialty.

Another new idea is to allocate these teams according to the number of troops in a field army (or communications zone), rather than to specific tactical headquarters. This is especially valuable in an army that may have many miscellaneous troops—a battalion here, a group there—that will total more than one or two divisions. Under the old system, provisional organizations were allowed no intelligence specialists. Under the present system, the army commander will have extra specialists according to his troop strength, and he can use these specialists to assist any provisional organizations if he so desires.

Approved T/O's for corps and army headquarters have not been published, so the only actual comparison between old

and new that can be made now is in the infantry division. Even though restricted in scope, this gives an idea of the trend.

It is easily seen from the Table of Organization that there has been a considerable shift from attached to organic, and that there has been an equally considerable increase in the total number of specialists available. It must be remembered that the MIS attachments are not "standard," but "available." The actual availability of MIS teams is based on the strength in a field army. For example, one BB interrogator team is authorized for each 15,000 troops in a field army. This is about one per division, but the army commander may assign none or several to any particular division, according to the situation.

In other words, the organic assignment of intelligence specialists, together with the standard CIC attachment, will provide enough help to cope with any average situation. To provide for the exceptional, however, additional specialists are available.

It is doubtful if a Military Intelligence Service will be organized in peacetime, for without an active enemy there is little need for these types of intelligence specialists in tactical units. However, every potential intelligence officer or commander must be aware of the general nature and capabilities of the system.

Old Intelligence Section, Infantry Division

Organic	*Attached*
1 Lt. Col.—G-2	1 CIC Detachment (3 O, 1 WO, 3 EM)
1 Maj.—Asst.	1 Intelligence Detachment Headquarters (1 O, 3 EM)
1 Capt.—Asst.	4 IPW Teams (total 4 O, 12 EM)
2 Photo Interpreters	1 OB Team (1 O, 2 EM)
2 Stenographers	1 PI Team (2 O, 5 EM)
2 Clerks	1 Military Intelligence Interpreter Team (1 O, 3 EM)
1 Draftsman	1 Military Intelligence Translator Team (1 O, 3 EM)
Totals	
3 Os, 7 EM	13 Os, 1 WO, 31 EM
GRAND TOTAL	16 Os, 1 WO, 38 EM

New Intelligence Section, Infantry Division

Organic	*Attached*	*Available from MIS*
1 Lt. Col.—G-2	1 CIC Detachment	1 BB * Interrogator Team
1 Maj.—Asst.	(4 O, 5 WO, 8 EM)	(1 O, 2 EM)
1 Capt.—Asst.		1 BF, Translator Team
1 Capt.—OB		(1 O, 2 EM)
1 Capt.—PI		1 BJ, Interpreter Team
1 Lt.—PI		(1 O, 2 EM)
1 Capt.—IPW		1 BN, Documents Team
3 Lts.—IPW		(1 O, 2 EM)
1 Intelligence NCO		1 CF, Aerial Photo Interpreter Team
2 Clerks, Intelligence		(1 O, 4 EM)
2 OB		1 CJ, Technical Intelligence Coordinator Team
6 PI		(1 O, 2 EM)
16 IPW		1 CN, Editorial Team
2 Stenographers		(1 O, 2 EM)
1 Draftsman		
Totals		
10 Os, 30 EM	4 Os, 5 WOs, 8 EM	7 Os, 16 EM
GRAND TOTAL	21 Os, 5 WOs, 54 EM	

* Denotes type of team. B-type is Operations (linguist); C-type is Operations (non-linguist).

Air Defense of Vital Areas

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FUTURE warfare will require that all air defense elements be ready to meet hostile air attacks instantly. Therefore, at some time prior to the initial air attack, all air defense elements must be thoroughly trained, equipped, and so deployed that this attack will be met with maximum effectiveness. To insure immediate engagement of hostile aircraft or missiles that penetrate the area of the air defense, certain "rules for engagement" must be established for the area and fully understood by all units and personnel in that area. In addition, these rules, which in effect will restrict friendly aircraft in flight, must be made known to all friendly aircraft which are present in the area as well as to such aircraft from bases outside of the area as may seek to enter the air defense area.

Within the area of the air defense, there may be a port, a center of communications, a bridge, or a manufacturing complex so important to our effort that its loss would seriously affect our chances for ultimate success. Such an area, or "vital area" as it is normally called, must be protected by the most effective means at our command.

During World War II, vital areas in the European and Mediterranean Theaters of Operation were accorded various levels of air defense protection as directed by the highest headquarters responsible for their protection. These areas were usually:

1. An inner artillery zone, a vital area defended by antiaircraft weapons and controlled by an air defense control center, over which friendly aircraft could fly only for special reasons and by permission of the Air Defense Controller, or

2. A gun defended area, a vital area defended by antiaircraft weapons and controlled by an air defense control center, over which friendly aircraft must fly in accordance with specific approach and identification procedures.

In most cases, no two vital areas had the same "rules for approach" or "rules for engagement." Instead, each such area had its own procedures which resulted obviously in much confusion and some loss of friendly planes, even though these vital areas might be in the same theater.

Rules for Engagement

Rules for engagement in these theaters usually called for engagement of aircraft by antiaircraft artillery when the aircraft were:

1. Positively recognized as hostile.
2. Committing a hostile act.
3. Diving at friendly troops or installations.
4. Approaching out of the sun.
5. Failing to adhere to approach procedures, such as wheels down and circling at fixed altitudes.
6. Dropping flares.
7. Radar jamming.
8. Dropping parachutists in excessive numbers.

In addition to these general rules for engagement, each defense had special rules which were caused by local conditions pe-

culiar to each locality, all of which lead eventually to an unwieldy and seldom-known mass of rules for engagement.

With improved early warning devices of the near future furnishing television-type data on aproaching targets, and with rigid control of friendly flights through or over the air defense area, it will be possible to take enemy aircraft under fire as soon as they come within antiaircraft range. It follows that the unwieldy "rules for engagement" should be dispensed with and the antiaircraft artillery caused to engage all aircraft and missiles that violate the vital area.

Since World War II, the aviation field has been constantly improving, especially in speeds and ranges of conventional aircraft and in guided missiles. Normal speeds tomorrow will be so fast that it will not be possible to use the unwieldy "rules for engagement." If time is taken to apply such rules, the hostile aircraft will have accomplished their mission and escaped from the area untouched. Engagement of hostile aircraft which violates the air defense area of the future must be immediate and any rules for taking such aircraft under fire must be positive and simple. To delay may mean the destruction of a vital area, thereby seriously affecting our war effort.

In the air defense of vital areas, antiaircraft artillery is the most efficient weapon, and the areas to be defended, and the rules for engagement and approach, should be promulgated at the theater level

Air Defense Solution

The solution of the problem of future air defense of vital areas appears to be predicated on the following factors:

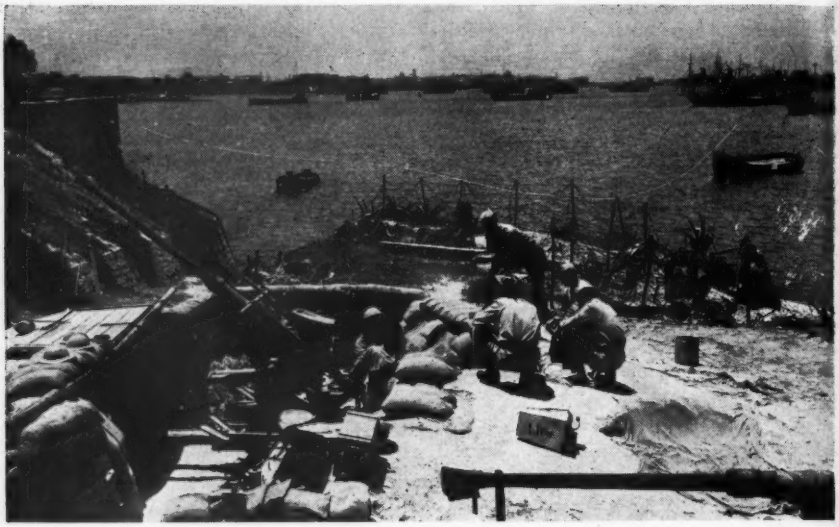
1. What headquarters will designate an area as a "vital area"?

2. What headquarters will prescribe the "rules for approach" and "rules for engagement" which apply to these vital areas and assure that the promulgation of these rules is complete?

3. What weapons can most efficiently protect the vital areas?

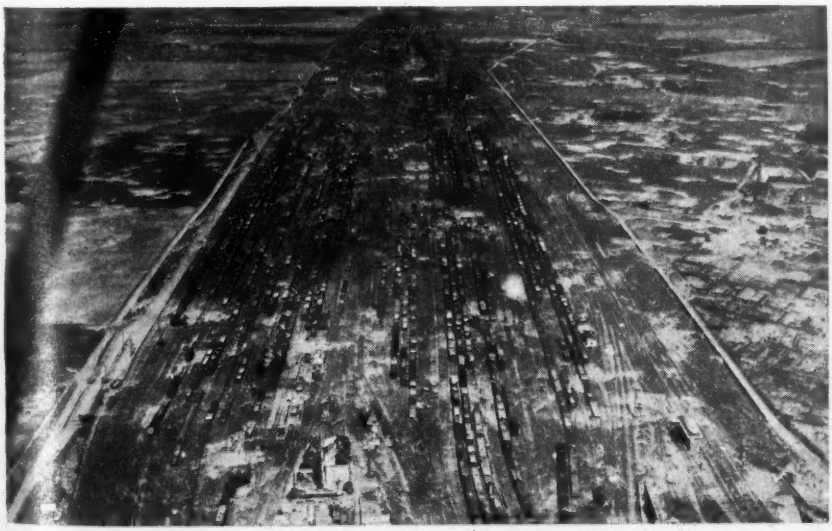
In any theater, overseas or in the Zone of the Interior, there is but one headquarters which has the authority to designate an area as a vital area. It is the topmost headquarters, the theater headquarters. Recommendations as to which areas should be so designated may be made at any level within the theater, but the final decision can only be made at the theater level. Having made the decision as to the "vital areas" in its area, the theater headquarters must not only publish this decision in theater orders for the information of its own units, but in addition it must inform all other theaters of the establishment of these vital areas. By so controlling the establishment of vital areas, the theater can keep the number of such areas to an absolute minimum. These should be only those vital areas which will be of utmost importance to the theater for the longest length of time.

"Rules for approach" to these vital areas, and "rules for engagement" by the weapons which are defending these areas, may be recommended at lower levels. However, to make these "law" in the theater, the theater headquarters must publish these rules in orders or in the form of a standing operating procedure (SOP). These rules will then insure the safety of flight of friendly aircraft throughout the theater, as well as guarantee immediate engagement of hostile aircraft and missiles which violate the theater area. Additionally, to insure the safety in flight of any friendly aircraft from other theaters which may enter or pass over the



Ports and beachheads are among the vital areas which require defense against air attacks. Above, an antiaircraft installation on the shore of a harbor in Tripoli, North Africa, in June 1943. Below, a radar searchlight control station and machine-gun emplacement at the Hagushi Beaches on Okinawa, June 1945.—US Army photos.

Bridge sites and communications centers are other installations requiring extensive anti-aircraft protection. Above, a ponton bridge across the Rhine at Remagen, with the famous Remagen bridge in the background, was heavily defended by antiaircraft units in March 1945. Below, the railroad yards at Cologne, Germany.—US Army photos.



air defense area, these rules must be furnished to all theaters for their familiarization and compliance.

Use of Antiaircraft

The vital areas discussed here are such areas as ports and manufacturing complexes, the extent of which are not too great. This fact leads to the problem of what weapons shall be used for their defense and on whom the responsibility for such defense is placed.

Air defense, as such, actually begins at the enemy's launching sites. It is there, if possible, that our air power should first strike and try to destroy the enemy, leaving him unable to attack our defense area. Unfortunately, we are unable to visualize such a successful air defense and must cope with the enemy in the air enroute from his bases to our air defense area. There again, our air power must seek him out and destroy him while enroute to his target and before he reaches it. There is no basis for the claim that no enemy aircraft or missiles could reach our vital areas.

Therefore, on what weapons must we depend for the final close-in defense of these areas? To commit our own aircraft to the defense of any one vital area in such numbers as to insure their ability to engage the enemy successfully is a most wasteful and inefficient use of the great range, speed, and flexibility of the air arm and would defeat the basic purpose of our air force, which is, substantially, to carry the fight to the enemy. The defense of our vital areas requires constant readiness, and aircraft cannot stay in the air over a vital area for any such length of time unless the task is done in shifts. This would mean an enormous increase in the number of aircraft tied down to a specific, small area.

Remember, too, that aircraft must have sufficient warning to allow them to get into the air and climb to where successful engagement is possible. This fact would have a great bearing on the decision to use an air umbrella over the vital area. This is too costly a way to use our aircraft and their highly specialized personnel and is definitely not the efficient defense demanded for these vital areas.

What weapons have we at our disposal which can fulfill the requirement of constant readiness to engage the enemy air attacks on our vital areas 24 hours a day, 365 days a year? The answer is obvious—the antiaircraft artillery. Antiaircraft—once the vital areas have been designated—can be emplaced prior to the enemy air attack, deployed in the most efficient manner for defense of the area, and should be capable of bringing fire to bear on the enemy aircraft with a minimum of warning. Due to the great speeds of future aircraft, any delay in engaging the enemy the instant he comes within range will prove fatal. Therefore, in the defense of vital areas, antiaircraft artillery must be free to fire on all targets which violate the air defense. The fact that fire will be opened immediately on all targets means that our own planes, and those of the enemy, must not enter the vital area. Any exception to this rule relieves the antiaircraft commander of responsibility for his area.

Summary

To sum up the air defense of a vital area, the following facts are evident:

1. Vital areas must be promulgated at the theater level.

2. "Rules for engagement" and "rules for approach" must be promulgated at the theater level and furnished to all units within, and air units without, the theater. They must be simple and positive.

3. The antiaircraft artillery is the most efficient weapon for the task and should be made responsible for the air defense of the vital areas.

Personnel Losses and Replacement Requirements

Lieutenant Colonel John R. McLean, *Field Artillery*
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The Personnel System

THE purpose of this article is to present to the reader a personnel problem which caused considerable trouble during World War II and one which must be given serious thought prior to and during a future emergency.

One of the most perplexing wartime manpower problems is determining personnel replacement requirements. How many? What types? When? Where? These are the questions which must be answered. The answers are obtained from estimates of personnel losses and replacement requirements.

First, we must become familiar with the basic personnel system of the United States Army in order to understand the scope of the problem. This system is based upon a minimum number of active combat units and supporting service units. These units must be maintained at full strength by a continuous flow of individual replacements drawn as needed from civil life. They must be trained as soldiers in required military occupational specialties in the zone of interior and then distributed as required to meet the need of the using organizations located throughout the world.

Inherent in this system are three major difficulties. First is "pipeline" time. It takes approximately one year from the date an individual is brought into the military service from civil life until he can replace a loss in a front line unit halfway around the world. This entails large numbers of individuals in what is called the "pipeline,"—individuals being clothed, equipped, trained, sorted, and shipped to their final destinations in a unit. This consideration of long pipeline time requires that estimates be made approximately a year before the losses actually occur. These estimates forecast the correct numbers and types of replacements of the proper sexes, races, grades, and skills that will be required (see Chart 1).

Another major difficulty is that individual men and women, unlike rations, gasoline, equipment or ammunition, cannot be procured, processed, and then stored in preparation for their use at some future date. There are two primary reasons for this. Men are the most critical component of the war effort; therefore, man-hours cannot be wasted in nonproductive storage. The second reason is that men who are held any length of time awaiting assignment deteriorate quickly in physical condition, morale, and occupational proficiency. In order that the personnel in the pipeline

Estimating personnel losses and replacement requirements in wartime is an inexact science, but plans for this work must be prepared well in advance, and trained personnel must be ready to operate the system

may progress steadily toward their destinations, estimates of personnel losses and replacement requirements must predict accurately, and well in advance, when and where replacements will be needed.

The third difficulty is that replacement requirements are continually changing. The requirements of the zone of interior and each of the theaters of operations are different from each other and vary from month to month. The numbers and types of replacements required by a given type unit are different in each theater, and within the same theater they vary from month to month. The principal causes for varying replacement requirements are: (1) changes in size, composition and disposition of our forces, (2) changes in casualty rates, and (3) utilizing the uneven flow of casualties recovered from the hospitals, those returned from a captured or a missing status, and retrained when necessary as replacement for personnel losses. Since some of the causes of changing requirements cannot be controlled, and since it might be undesirable to control other causes, estimates of personnel losses and replacement requirements must be revised continually.

AVERAGE PERSONNEL PIPELINE TIMES—WORLD WAR II

	Weeks	
Department of the Army Planning	8	
Selective Service call	8	
Induction Station and Reception Center	1	
Replacement Training Center	19	
Furlough	3	
Oversea Replacement Depot	2	
Ports of Embarkation	1	
Enroute overseas	2-4	
Theater Replacement Command	2-4	
Transfer to unit	1-2	
TOTAL	47-52	weeks
Specialist training	4-20	weeks
TOTAL	51-72	weeks

CHART 1.

Personnel Losses

Before a replacement is needed in a unit, there must be a loss or casualty. Personnel losses or casualties are any reduction in the strength of a unit. These losses are occasioned primarily by the enemy, disease, accidents, and administrative action. For estimate purposes, these losses are grouped in three categories.

All casualties due to enemy action are battle casualties. They include persons who are killed in action, die as a result of wounds or injuries received in action, are wounded, injured, or missing in action, or captured by the enemy.

Non-battle casualties are losses caused by physical and mental diseases, including psychoneurosis and injuries not resulting from enemy action such as frostbite, trench foot, and immersion foot.

All losses resulting from administrative policies are administrative casualties. They include discharges, transfers to other units, desertions, absences without leave, and rotational losses. Since these losses are based on changing policies, they are not adaptable, as a group, to the over-all long-range estimate treatment which is discussed in later paragraphs. Losses caused by the operation of administrative policies in the various commands must be estimated separately.

Casualty Experience

Estimates of personnel losses are based on casualty experience of preceding wars, campaigns, and operations. In the early phase of a war, the only casualty experience available is that of preceding wars. General casualty information is available in field manuals to commanders at all levels. Detailed studies of specific areas, operations, and conditions are available in the files of The Surgeon General and The

Adjutant General (see Chart 2). *Before this information can be used, it must be modified by evaluating and comparing past and future conditions and by adjusting the information to changed conditions.*

As war progresses, each echelon of command from combat divisions to Headquarters, Department of the Army, collects, compiles, evaluates and translates its own experience into loss-rate tables for use in estimating future losses and replacement requirements. This current information more accurately reflects the conditions with which the particular command may be confronted. However, even this last-minute experience must be modified to fit anticipated future situations. During wartime, analyses of casualty data are published by army and higher headquarters for use of higher, adjacent, and subordinate headquarters.

Casualty data from current operations is obtained through a system of reports made by the adjutants general and surgeons at each echelon of command, supplemented and verified by activity reports of chaplains, provost marshals, and graves registration units.

Factors Influencing Casualty Rates

There are many factors which influence the casualty rates for a particular unit or group of units operating under a particular set of conditions. *No two situations are exactly alike.* The following factors are used in analyzing past experience and anticipated situations for the purpose of determining applicable casualty rates. The weight of each factor varies with the particular situation.

1. Location of unit.
2. Type of operation.
3. Character of the enemy.
4. Weather and climate.
5. Condition and morale of troops.
6. Duration of combat.
7. Sanitation and preventive medicine.

In making the analysis, battle casualty and non-battle casualty rates and their component parts are handled separately because the factors affect each differently. Also the return-to-duty rates of each category of casualty are different.

Procedures in Estimating Losses

The first step in making a casualty estimate is to analyze the anticipated situation based on the factors which influence the battle and non-battle casualty rates. The G-3 and G-2 acquaint the G-1 with the plans and anticipated conditions.

The second major step in making a casualty estimate is to select the latest parallel situation in past operations for which the casualty rates are known and to analyze the past situation based on the factors which influence the battle and non-battle casualty rates. The surgeon and adjutant general provide the G-1 with detailed casualty experience data of past operations. From the analyses of the past situation and the anticipated situation, the battle and non-battle casualty rates for the anticipated situation may be determined.

The last step is to apply the new casualty rates to the strength of the force for the planned operation. From casualty experience data, the required information of the casualties by military occupational specialty, by grade, and by branch may be obtained. These percentages, too, may have to be modified to fit the anticipated situation.

Replacement Requirement Estimates

As far as division, corps, and army units are concerned, casualty estimates and replacement requirement estimates are one and the same. In addition to those killed, missing, or captured, any man evacuated to an army evacuation hospital or to a hospital in the communication zone is dropped immediately from the rolls of his organization and from the authorized strength of the theater or any of

CHART 2.—EXAMPLES OF CASUALTY EXPERIENCE.

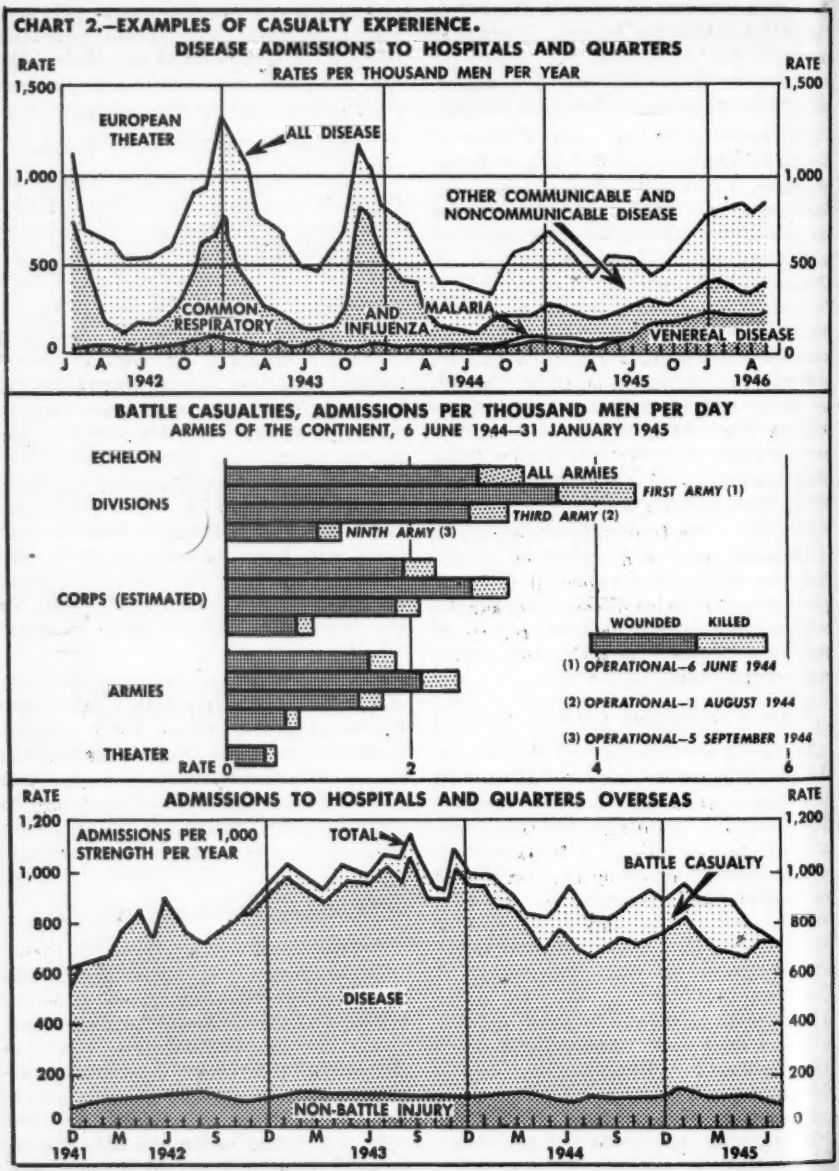
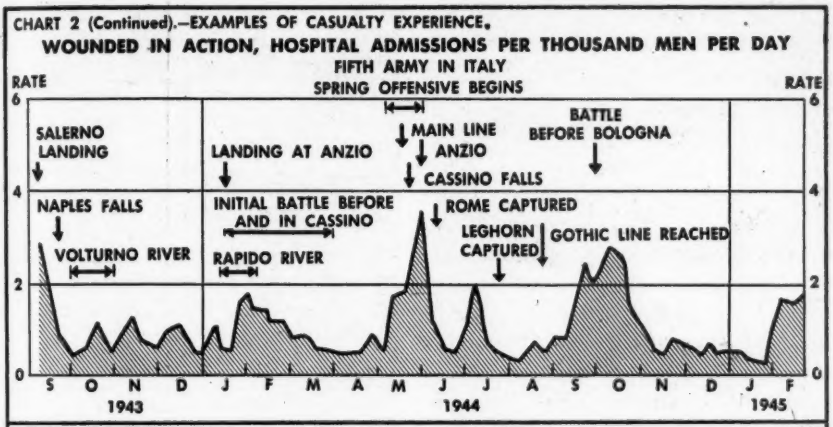
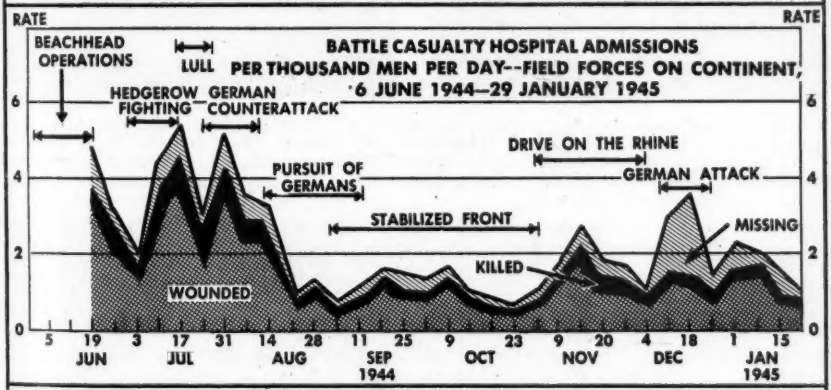


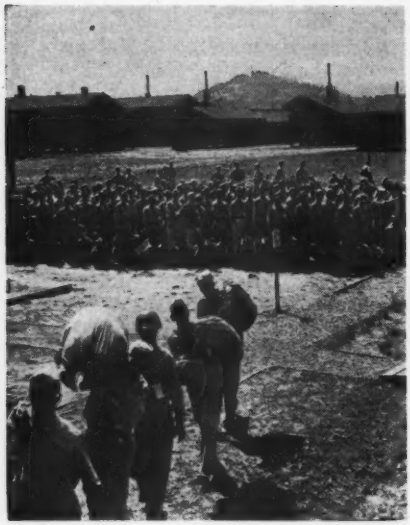
CHART 2 (Continued).—EXAMPLES OF CASUALTY EXPERIENCE.





EXPERIENCES OF EUROPEAN DIVISIONS 6 JUNE 1944 TO 31 OCTOBER 1944

% OF TIME	ACTIVITY	BATTLE CASUALTIES RATE/1000/DAY VARIATION	AVERAGE
22	RESERVE	0-0.5	0.25
28	ATTACK, LIGHT OPPOSITION, PATROLS	0.5-1.5	0.8
31	HOLDING AND CONSOLIDATING	1.5-6	3.3
19	ATTACK, HEAVY OPPOSITION AND DEFENSE AGAINST COUNTERATTACKS	6-21	9.3



Nearly a year elapses before a recruit can replace a loss in the front line. Here are some typical phases in the replacement "pipeline": left, above, fillers for the 70th Division, Camp Adair, Oregon, 1943; right, above, first US combat replacements in India, arriving for jungle training, 1944; below, reconversion training in France, 1945.—US Army photos.

Nearing the end of the personnel "pipeline," above, replacements move into the front lines in Luzon, March 1945. Replacement activities continue after the war: below, left, troops from a replacement and disposition center board a transport at Manila, January 1947; below, right, EUCOM Replacement Depot, Marburg, Germany, June 1947.—US Army photos.

its subordinate units. As soon as a man is dropped from the rolls of his unit, a replacement is required and a requisition may be submitted for the replacement.

In communications zone units, personnel who remain in hospitals for long periods—generally over 60 days—are dropped from the rolls of their units. At that time, the individuals become losses and replacements are required. Therefore, in replacement requirement estimates, the rate applicable to communications zone estimates includes only those casualties for which replacements are required.

At theater level, estimates of the losses of major subordinate commands are used as a basis for allocation and distribution of available replacements and in planning the operation of the theater army-replacement system. In addition, estimates of personnel who return to duty from hospitals within the theater, and of theater personnel who will be retrained to fill replacement requirements of combat and service units, must be considered in planning the allocation and distribution of replacements and in planning the operation of the theater army-replacement system. They must also be used in the estimates and requisitions sent to the Department of the Army stating requirements to be met from sources outside the theater. Therefore, replacement requirement estimates from outside sources are based on theater casualty rates modified by the rates at which personnel become available from sources within the theater.

Theaters of operations normally submit monthly estimates of the number of replacements required each month for each arm and service some 4 to 9 months in advance of the date of submission. Each month, the previously submitted estimates are revised and a new estimate for the ninth following month is prepared. Every 3 months the theater submits theater-rate tables which reflect for each arm and service separately the number of individuals in each military occupational specialty required for each thousand replacements of that arm or service.

In the zone of interior, estimates of replacement requirements for units in training and operating overhead, together with estimates of replacement pipeline losses, are prepared for the Department of the Army by each of the major commands. As in the communications zone, replacement requirement estimates include only those casualties for which replacements are required. Those individuals who go to hospitals for short periods—generally less than 90 days—are retained on unit rosters and return to their units on recovery. Estimates of patients in zone of interior hospitals who will return to duty are prepared by The Surgeon General's Office.

Initial estimates for replacements to fill the pipelines both in the zone of interior and in theaters of operations are prepared by the Department of the Army. That headquarters also prepares separate estimates of replacement requirements for monthly maintenance of zone of interior major commands and of each theater of operations. These estimates are used to forecast long-range bulk personnel requirements of the Army as a whole, to plan for the processing and training installations and for the operating personnel required to handle the replacement flow, and to estimate shipping requirements and other logistical considerations.

Estimates of the Department of the Army are verified and changed by subsequent estimates from zone of interior major commands and from each theater of operations. These estimates form the basis for the number of civilians to be inducted in the Army each month; for the allocation of these recruits to each arm or service for training; for the training rates given to each arm and service, including the number-per-thousand replacements to be trained in the various military occupa-

tional specialties; and for the initial distribution plan of trained personnel.

Requisitions

Up to this point, the subject of requisitions has been avoided. Requisitions are generally statements of *actual* needs of a command and are the instrument by which the units draw replacements from the replacement pipeline. They are prepared too late to affect the number, type, and direction of the replacement flow. Theater requisitions on the zone of interior are the exceptions to this statement. This exception is necessary because of the time and space factors involved in moving large groups of replacements to distant theaters. Theater requisitions are based on the estimates we have discussed and are usually submitted 3 months prior to the expected landing of the replacements in the theater.

Department of the Army final distribution of replacements to commands in the zone of interior and to theaters of operations is made after careful consideration of each theater's requisition, their current strengths, the number and types of trained personnel available, and the priority given to the operations being conducted in each theater.

World War II Lessons

Our recent experience in determining personnel losses and replacement requirements for the largest Army in United States history reveals many lessons which should be noted and remembered by planners and operators of the future. A few of these lessons are:

1. Plans for personnel replacement support must be developed concurrently with strategic and operational plans at all levels of command.

2. The mobilization plan, supporting troop basis, and initial operations plans for a future emergency must provide for the necessary time and personnel required to fill the long replacement pipeline to the battlefields.

3. Replacements must be allocated, trained, and distributed by branch and military occupational specialty according to anticipated losses and not in direct proportion to the branch and military occupational specialty composition of the force.

4. It is neither possible nor necessary to maintain a portion of the replacement pipeline for each of the approximately 1,100 military occupational specialties required by the Army. The bulk of the replacements should be provided in the lowest classification within groups of related military occupational specialties. Specialties of each branch requiring considerable additional training should be provided separately. Replacement requirements should be determined accordingly.

Summary

In the future, the system of providing replacements to units can be expected to be about the same as was used in the past, with a possible increase in tempo to meet the trend of speed-up in operations. More battle and non-battle losses may occur in the zone of interior and along the lines of communications due to the increasing use of long-range bombers, guided missiles, and other new weapons. Changes in personnel replacement requirements may be even more frequent and varied.

Plans for determining personnel losses and replacement requirements must be prepared well in advance. These plans must provide for an integrated system of strength reports, estimates, and requisitions for the following purposes: (1) to determine the constantly changing numerical and categorical personnel replacement requirements of the various echelons of the Army as the war progresses through the stages of mobilization and combat operations; and (2) to adjust and control the allocation, training, and distribution

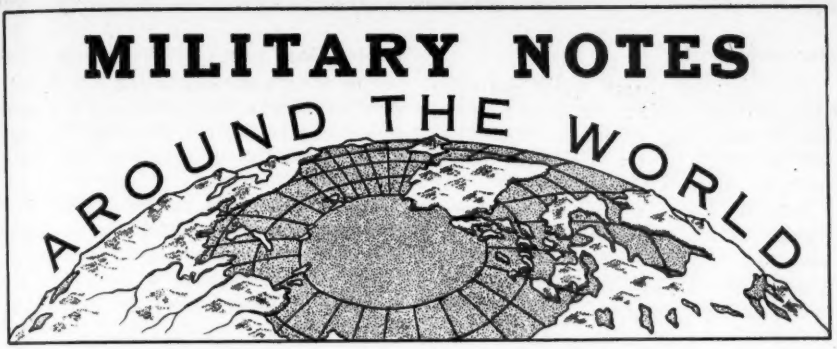
of personnel. Also, trained personnel must be ready to operate the system.

Estimating personnel losses and replacement requirements in war is not an exact science, even under the most favorable conditions. There will always be some error because the causes of casualties cannot be controlled completely. However, the smaller the error in the estimate, the more correct will be the distribution of available replacements and the more efficient will be the use of manpower.

Fighting men are the one important commodity of which there is never enough and for which there is no acceptable substitute. Our national security demands that we make efficient and timely use of the manpower allotted us. Because time is all-important during mobilization, our training requirements must be reduced to absolute essentials and our training methods must be rid of all lost motion. We must train in peace as we will train in war. Our mobilization training must be an expansion, not a revolution, of our peacetime training.

General Jacob L. Devers

MILITARY NOTES AROUND THE WORLD



UNITED STATES

Helicopter Wire Laying

The feasibility of laying telephone wire for military purposes by helicopter has been demonstrated by Signal Corps engineers at the Signal Corps Engineering Laboratories, Fort Monmouth, New Jersey. The tests also demonstrated that helicopters could be used advantageously for the inspection of field telephone lines.

To determine the accuracy with which wire may be payed out, a course was plotted and a marker placed in an open meadow. Wire was then successfully laid within a yard of the marker and between trees separated by a few feet.

In another test, wire was laid across tree tops at the foot of a gully which had proved impassable for wire laying crews and had been by-passed. As a result of the short cut, the wire line was shortened approximately 25 percent.

A flight to determine the value for maintenance purposes of line inspection followed several miles of laboratory test line at an average height of 40 feet. The pilot often descended to wire level to permit close scrutiny for breaks.

The engineers concluded that the use of a helicopter offers advantages over the airplane, which was occasionally employed in wire laying during World War II.—Department of the Army.

Unified Service Police

Unification of all service police units on the island of Oahu, Hawaii, has proved a success. The Hawaiian Armed Forces Police Detachment has been established more than 6 months.

Personnel of the combined force, consisting of the Army's Military Police, the Navy's Shore Patrol, and the Air Force's Air Police, are under the command of an Army officer, with a Navy officer as Executive Officer and an Air Force officer as Detachment Commander.

As a result of the unification, economies as well as simplified procedures have been effected.

The Armed Services Police Detachment includes 6 officers and 105 enlisted men furnished on a pro rata basis by each service. The men billet together. The detachment is responsible for all military police functions outside of military reservations and has joint police powers for all service personnel on Oahu.

In addition to billeting and mess, the services are jointly provided offices, dispensary, detention cells, and a motor pool.

The Detachment works in close cooperation with the Honolulu Police Department and other law enforcement agencies.—National Military Establishment.

Electronic Brain

An electronic brain, which can solve mathematical problems of motion faster than it takes the motion to occur, has been developed for the Air Force by the Goodyear Aircraft Corporation.

Designed under a special Air Force contract to speed up the research engineering of new aircraft types, the electronic "slide rule" promises to ease the drudgery of mathematics in creative engineering.

The radio brain, 2 feet square and 6 feet tall, weighs approximately 800 pounds and contains 100 radio tubes. The operator of the machine "writes" his equation with electrical circuits. Using a board similar to a telephone switchboard, the operator merely plugs in any desired equation by hooking up a variety of circuit combinations. Once the machine is set for a particular equation, it will give the answers in a speedy stream on a special tape in the same length of time required for the motion to take place.—*Armed Force.*

Jet Development

Jet engines which may produce five times the power of types now in use are being developed by the National Advisory Committee for Aeronautics.

This means that aircraft engines with 25,000 pounds of thrust in a single unit may be developed. That thrust would equal 50,000 to 100,000 horsepower in effective "push" with the aircraft flying at 700 to 1,000 miles an hour.

The most powerful jet engine at normal rating today is the General Electric J-47, used to set a world speed record of 671 miles per hour in an F-86 plane. The J-47 rates normally at 5,000 pounds of thrust, but the effective force increases with the speed. More powerful turbo-jet engines are being made for use but have not yet been announced.—News report.

Tabun Gas

The Soviets, as well as the US Army's Chemical Corps, have Germany's famed poison gas, tabun, but this fact does not disturb officials of the National Military Establishment.

Gas masks issued during World War II, as well as today's models, are adequate protection against tabun, contrary to some reports. The chemistry of the gas, although a military secret, is thoroughly understood, the Chemical Corps reports.

Tabun is a potent war gas. It is difficult to detect as it is practically tasteless and odorless.

Some German plants for producing the gas were located in areas now in the Soviet Zone in Germany.—*Science News Letter.*

Air Weather Service

A Radiosonde that goes down instead of up has been adopted by the Air Force's Air Weather Service for launching from weather reconnaissance aircraft in flight over oceans and remote land areas.

The new method involves the use of equipment known as the Radiosonde AN/AMT-2. This set is a radio recording device that has been used for a number of years by the national weather services—Air Force, Navy, and US Weather Bureau—to probe the upper air for temperature, barometric pressure, and relative humidity.

The Radiosonde has been provided with a "new look," dressed up in a parachute so that it may be dropped from aircraft flying at high levels instead of being launched from the ground by balloon.

The new device has been unofficially designated as the "Dropsonde" (Radiosonde AN/AMT-3). Being a variation of the Radiosonde, it brings together two of the primary methods of weather observing in achieving its purpose—aerial reconnaissance, plus ground observation techniques.—*Army and Navy Journal.*

More Powerful "Bazooka"

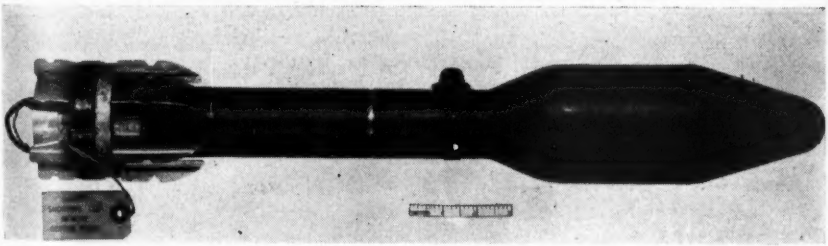
The Ordnance Department has standardized a bigger and better shoulder-fired rocket. This new rocket will be used primarily by the Army and Marine Corps but will be available to the Navy and Air Force for special purposes.

The infantryman now becomes a much more formidable opponent of armored vehicles than during World War II. He can stop the heaviest tanks and stop them sooner at a greater distance. Using this rocket, he can penetrate as thick a plate of armor as can an 8-inch gun. In Navy parlance, the infantryman now is a "light cruiser" on foot. Expressed another way, the armor penetration is approximately the same as that of a 1,000-pound armor-piercing bomb dropped from 25,000 feet.

The new rocket (M28) is about twice as effective as the well-known "bazooka" of World War II. It is a 3.5-inch fixed-fin rocket, weighing about 8½ pounds. It will penetrate about twice the thickness of armor plate penetrated by the old bazooka. The effective range and the velocity after the propelling charge is burned are about 50 percent greater than those of the bazooka. The explosive head is about three times as heavy, and the payload is proportionately greater.

The usual rocket team consists of two soldiers, though it can be operated by one man in an emergency.—Ordnance Department.

Above, left, demonstrating how the new 3.5-inch rocket launcher (M20) may be loaded from the left side, and also how it is fired from the standing position; above, right, firing the rocket launcher from the prone position. Below, the new 3.5-inch rocket (M28) which possesses tremendous explosive power.—Ordnance Department photos.

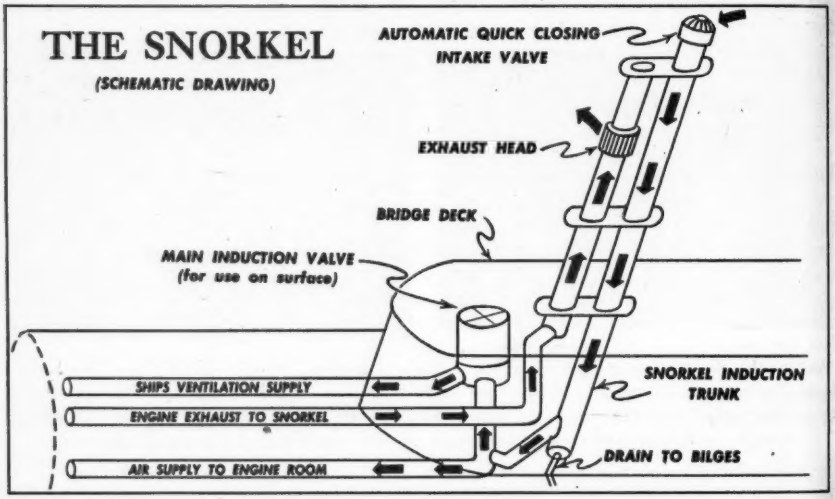


Picket Submarines

With the Navy's announcement that its first picket submarine is on active duty, there is speculation that all radar picket vessels may eventually be submarines.

The submarine radar picket is presently experimental. Special conversion of submarines is necessary to fit them for picket use. Such duty requires long cruising range, endurance, and highly sensitive radar equipment. The *Tigrone*, now on active duty, was fitted with the *Schnorkel*, the German breathing device illustrated below. This device enables submerged submarines to cruise indefinitely, using Diesel motors.

The usefulness of the picket vessel was highlighted a year ago when the termination of the US-Panama agreement resulted in the Air Force withdrawing from its Panamanian radar bases. The Navy took over the function of the bases with picket vessels in the Canal area.—*Signals.*



National Guard Strength

The largest peacetime National Guard in history exceeded its fiscal year strength objective 3 months ahead of schedule with a total of 343,266 officers and men on 31 March 1949.

Reports from the Adjutants General of the States showed that Army units of the National Guard had attained a strength of 303,586 against an objective of 300,000. The Air National Guard had attained a strength of 39,680 against an objective of 41,000.—National Military Establishment.

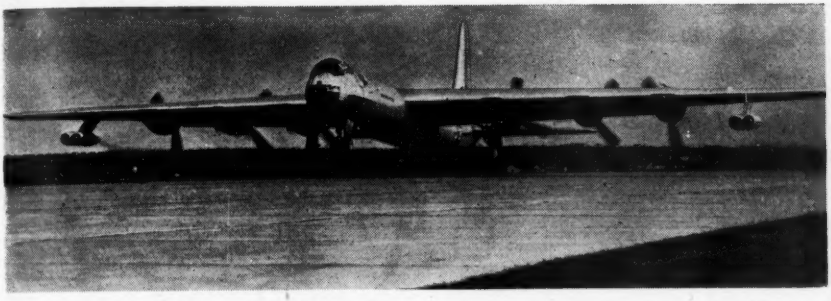
Radar Network

Authority for the US Air Force to build a radar network across the nation's strategic air approaches was signed into law by the President recently.

In addition to radar outposts on land, the system will include radar picket vessels to be operated offshore by the Navy. The Air Force will have full jurisdiction over the warning network.

The entire plan will operate from eight widespread control centers. Other centers will be set up by the Air National Guard in an emergency.—*The New York Times.*

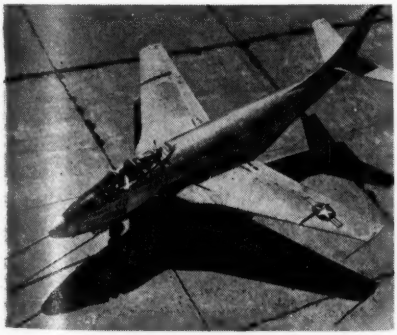
Jet Engines on B-36



A Consolidated Vultee B-36 bomber, with four J-35 jet engines in addition to its six reciprocating engines, is shown on the take-off run of its first jet-powered flight. The flight lasted for 3 hours and 15 minutes and was considered successful. Taking off at a gross weight of 280,000 pounds, the B-36 climbed to 40,000 feet and remained there for some time.—US Air Force photo.

The XF-88

Still in the experimental stages and undergoing tests at Muroc Air Force Base, the XF-88 twin-jet fighter is designed as a "penetration fighter," capable of operating deep inside enemy territory. Both wing and tail assembly of the XF-88 are swept back. The single-seat pressurized cabin is forward of the leading edge of the wing.—US Air Force photo.

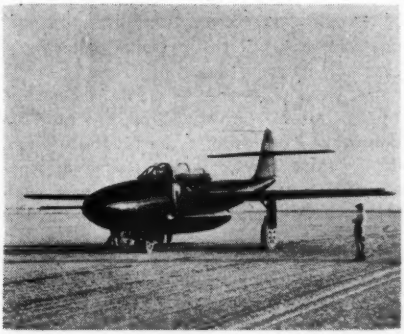


McDonnell XF-88.

The XF-89

Designed for night and all-weather flight, the XF-89 fighter carries a crew of two seated in tandem in a pressurized cabin. The plane has a gross weight of more than 30,000 pounds.

Two jet engines powering the fighter are carried in separate nacelles beneath the fuselage. Performance details have not been announced.—US Air Force photo.



Northrop XF-89.

EGYPT

Suez Canal By-Pass

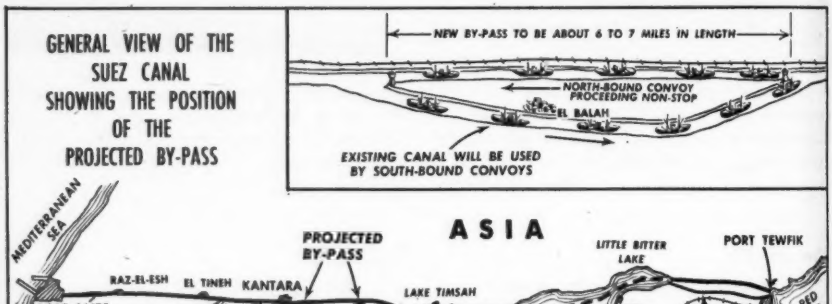
With the immense development of the oil fields of Persia, Iraq, and the Persian Gulf area, the traffic in the Suez Canal has greatly increased in recent years.

Ships in motion are not allowed to pass in the canal. Ships with dangerous cargoes and those carrying mail have priority. On meeting priority ships, other vessels must tie up until the priority ships pass. This can cause a delay of from 12 to 24 hours. To obviate this as much as possible, convoys, usually of six ships, are now organized at Port Said in the Mediterranean and at Port Tewfik in the Red Sea. Normally, two convoys leave each port each day, and they pass each other in the big lakes on the Canal's course. There is still a stretch of 60 miles in the northern sector of the Canal without any widening.

The Suez Canal Company has decided to cut a by-pass canal 6 miles long out of the desert. It will be approximately 30 miles from Port Said and will allow convoys to pass with convenience and complete safety.

This work will involve the removal of nearly 18,000,000 cubic yards of soil and will take 2 or 3 years to complete.

In addition, the Company has decided to deepen the entire Canal by 20 inches to allow the passage of the newest tankers, which have a draught of 36 feet. This will make it easier to steer large vessels, which at present have too little water flowing past the keel for easy handling.—*The Illustrated London News.*



SWEDEN

Fighter Force

A recommendation for a substantial reinforcement of Sweden's fighter forces was made recently by the Commander in Chief of the Swedish Air Force. Seven of the 10 existing day-fighter wings are to be reinforced by 50 percent. The number of night-fighter wings will be doubled.—*The Aeroplane.*

AUSTRALIA

Security Strengthened

The process of stimulating development of Australian industry is being hastened by defense planning. A peacetime security service is to be established. In addition, the government is reorganizing the Council for Scientific and Industrial Research (CSIR), its chief arm for defense research.—*Australian Weekly Review.*

GREAT BRITAIN

Army Strength

The British Army will drop 300,000 men—more than one-third its present strength—from its rolls in the coming year, but its net expenditure will be cut by only $1,200,000. These figures were published recently as the government presented to Parliament its Army appropriation for the coming fiscal year.

The total sum requested for the Army's needs during 1949-1950 was set at $1,218,800,000, compared with $1,220,000,000 voted for 1948-1949. The Army's strength, now 850,000 men, will be reduced to 550,000.

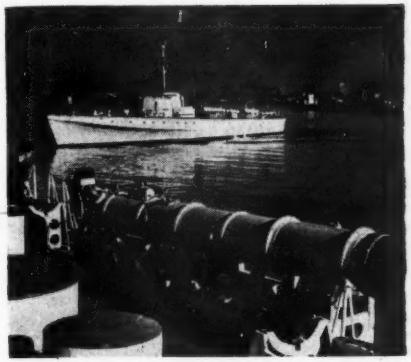
The War Secretary announced that the British garrison in Europe, including that within the United Kingdom would be 337,100 men during the coming year, compared with the present strength of 427,300. Outside Europe, he said, the British Army will keep 79,000 troops, compared with 114,000 at present.

The Secretary ascribed the continuing high level of army spending, despite the sharp drop in manpower, to higher costs for new equipment and vehicles. At the war's end, the British Army had more than 1,500,000 vehicles on a world-wide basis, plus 10,000,000 tons of stores, but the greater part of such supplies is now obsolete or exhausted.

He noted a sharp retrenchment in the Army's request for funds to administer occupied territories in Africa and disclosed that no funds had been requested for the Sudan defense force, the Trans-Jordan frontier force, and the Arab Legion.

An indication of Britain's increasing delivery of arms and equipment to her partners in the Western Union was shown in the rise in appropriations aid to $206,000,000 from $140,000,000 for the current year. A large part of the increase, it is believed, will be spent on jet-fighter aircraft and radar-warning equipment.—*The New York Times.*

Arctic Test



Early in 1949, three British motor torpedo-boats made a cruise within the Arctic Circle to test the vessels and equipment under conditions of extreme cold. Each torpedo-boat displaces 120 tons and carries a complement of 3 officers and 21 enlisted men. The picture above shows one of the boats used in the arctic tests. Below, crew members demonstrate different types of cold-weather clothing. — ***The Illustrated London News.***

USSR

Armed Forces Budget

The Supreme Soviet (Parliament) of the USSR was told recently that Russia's armed forces have been allocated 19 percent of the total expenditures in the 1949 budget, compared with 17 percent in 1948.

The budget fixed the total state expenditures at 415 billion rubles, an increase of 46 billion rubles over 1948. The armed forces were given 79 billion rubles (15 billion dollars at the Soviet official exchange rate), compared with 66 billions last year.

The Russian finance minister attributed the increased expenditure for the armed forces to higher wholesale prices and transport costs.—News report.

HUNGARY

Student Training

Steps have been taken to put the communization and semimilitarization of Hungarian university life into effect. The first step was the publication of a notice that each faculty was expected to supply a specified number of volunteers for training as army officers.

The next step was the issuing of the so-called cadre blanks to students. Each student was required to fill in these forms and to show whether his father is a worker, a farmer, or a member of the bourgeois class. If the father is a farmer, it is required to state how many acres of land he tills. If he is a member of the bourgeois, the number of his employees must be stated. Qualified students were told that sons of workers or farmers must volunteer for officer training or face expulsion.

By 15 March, all university students had to be registered for military training. Every student is expected to spend 1 month a year in "voluntary" work for the state and voluntarily attend special political classes twice a week.—*The New York Times.*

BRAZIL

National War College

A National War College has been organized to train military personnel for duty with the high command of the armed forces, with the general staff, and with the national security boards of the civilian ministries. Instruction will begin in January 1950.

The mission of the new college will be to place into effect government plans, policies, and directives pertaining to national security. Students, both military and civilian, will be those possessing the highest qualifications in matters pertaining to national politics, with special emphasis on foreign affairs.

The main subjects to be covered in the school are:

1. National problems, an analysis of the basic problems of interest in the development of the national potential.

2. International problems, a study of foreign policy as it pertains to national security; trends in world affairs as they pertain to western hemisphere policies.

3. Military problems, the employment of combined forces; determining the armed forces necessary to support national policies in peace and in war; strategic planning and national mobilization.

Recent graduates of the National War College in the United States were invited by the Brazilian government to assist in establishing the new college.—*Brazilian Bulletin.*

GUATEMALA

Gets US Air Base

The air base constructed by the United States at Port San José in November 1942, by agreement with Guatemala in the mutual aid program against the Axis, was transferred to Guatemala recently by the commanding general of the Caribbean Air Command.—*The New York Times.*

NORWAY

Home Guard Training

The Norwegian Regular Army consists of about 30,000 men. Supplementing it is the *Heimevernet* (Home Guard) of 95,000. This group consists of volunteers and conscripts from the 1940-1944 classes who were not called for service during the German occupation.

Home Guard members keep their rifles and other equipment at home and are ready to turn out on very short notice. Their chief duties are to defend their own locality; to maintain communications; to act as an intelligence service; to cover the mobilization of the Regular Army field divisions, and if need be, to provide reinforcements for those divisions. They are to take over some of the smaller coast artillery batteries in the near future.

The Home Guard is armed with small arms, mostly of German manufacture, and it has light antitank guns. Conscripts serve 120 hours a year. Volunteers serve 50 hours each year.—*The Illustrated London News.*

Above, left, a detachment of the Norwegian Home Guard in training near Oslo, advancing over snow-covered ground during maneuvers; above, right, a tactical problem being explained on a sand table before the group goes out for night training; below, left, a platoon on the march; below, right, a light machine-gun section in action.

TURKEY

Naval Organization

The President of the Republic is the supreme chief of the armed forces. His authority is exercised through the chief of the general staff whose powers extend over all the armed forces. A vice admiral acts as commander in chief of the fleet with headquarters at Göpeuk.

The commandants of the naval ports and bases, personnel, and matériel, are under the authority of the ministry of national defense. A vice admiral acts as marine counsellor to the minister.

Izmir is the principal base of the Turkish Navy. It is commanded by a vice admiral and possesses an important arsenal at Göpeuk. Other bases of the fleet are:

In the Bosphorus—Anadolu Kavak, and Istanbul, with its arsenal and its civil shipyards, particularly that of Stenia; in the Dardanelles—Canakkale, Izmir; on the Sea of Marmara—Erdek; on the Black Sea—Trebizonde, Samsun, and Zonguldak; and Alexandrette and Mersine.

The strength of the Navy is 16,000 men, including 1,000 officers, with approximately a third on board ship.

The crews consist largely of draftees serving for 3 years. Before being sent to a school lasting from 3 to 6 months, they receive elementary military and naval training during a 3-month basic training period. They are then assigned to vessels of the fleet where their training is completed.

The subordinate officers come from a government academy which they enter between the ages of 10 and 12 years. After 6 years of study, they take a course at the Kasimpacha school of specialized instruction and then serve on the old cruisers *Hamidive* and *Mecidive*.

The officers come from the Halki (one of the islands of the Sea of Marmara) Naval School, which, in the spring of 1941, was removed to Mersine, at the time of the German threat to Istanbul. About 40 officers are graduated from it annually, four-tenths of whom are executive officers, five-tenths are engineer officers, and one-tenth hydrographic engineers. Later, those officers who so desire take courses at schools of specialized instruction to qualify as gunners, torpedo officers, navigators, electricans, and radiomen. Radio officers also have been placed in charge of radar. Medical officers are not numerous; they are generally reservists. The paymaster corps is also almost exclusively made up of reserve officers.

The Turkish naval forces comprise the following:

—One battleship of 23,000 tons, the *Yavouz*. Its artillery is powerful, consisting of 10 280-mm and 10 150-mm guns, 8 88-mm antiaircraft guns, and 18 40-mm Bofors antiaircraft guns. Adequately modernized, this large vessel, although no longer new, would still be capable of rendering valuable service.

—Eight destroyers, organized into two flotillas, one of ex-Italian and one of ex-English vessels.

—Thirteen submarines: 4 ex-American, which began service in 1944; 3 ex-English, which began service in 1942; 1 of German type, placed in service in 1939; 1 constructed in Spain in 1935; and 4 older vessels used for training.

—About 30 minesweepers, including 4 built in 1943 and purchased in Australia in 1946, 8 of the American *Raven* type purchased in Great Britain, and 4 British vessels.

—A few vedettes, patrol boats, and motor torpedo-boats.

—Lastly, a number of auxiliary vessels, including three "boom defense vessels," six "harbor defense motor launches" and eight vedettes of the Fairmile type.—*La Revue Maritime*, France.

The French Military Problem

Translated and digested by the MILITARY REVIEW from an article by General J. Revol (France) in "Revue Militaire Suisse" (Switzerland) September 1948.

FOR nearly a century, the military problem which France had to solve was relatively simple, and this simplicity was expressed in the way the problem of high command was handled. France had one principal enemy on the Alsace-Lorraine frontier; elsewhere—in the Alps and the Pyrenees—there were possible adversaries of secondary importance. On the sea frontiers, the only forces to be feared were those of these same neighbors.

These were the perspectives which the international situation offered in Europe after the French defeat in 1870. Outside Europe, the French colonial empire required only a passing and limited military effort. It took little from the military potential of the home country. On the contrary, it contributed to its increase.

Though France was no longer able to dictate her desires in the manner of Richelieu, Louis XIV, or Napoleon, she at least was counted among the great powers. In spite of the uncertainty of the outcome of her battles, the prestige of her army was intact. This was plainly evident in World War I when she halted the German Army on the Marne, thus permitting the Allies to build the weapons which ultimately were to win victory. But unfortunately this victory of 1918, since it left Germany with free access to its immense war resources, did not free France from the necessity of maintaining her traditional watch on the Rhine. Nothing was changed in the disposition of the French forces, and once again the fate of the West, together with her own, was decided on the plains of Belgium and the North.

A second time, fate played against France. The minor part played by the French Army in the Anglo-Saxon victory in World War II saved the honor of the French name, but it is an impression which might be only temporary. At the same time, World War II transformed humanity and overturned the international situation. In Europe, the tendency toward "Balkanization" is becoming increasingly marked. Germany has been made ineffective for at least one generation. France now has the chance to get her breath and reestablish herself. War is no longer threatening at her door. The idea of a Franco-German conflict should cease momentarily to haunt the minds of men. It will not be over France that future wars are started. Their vastness will extend beyond her, subjugating her. Two "super-powers" are, above all others, supreme. Their quarrels will

envelop the smaller of the remaining nations. Let France see to it that she plays her role, a role suited to her own interests, in a new conflagration. Let France, to this end, prepare her armies on the basis of the aims to be attained. The French military organization is faced with the problem of correcting the erroneous practices of the past, and of adapting itself and raising itself up, if possible, to the global scale of the armies which it will meet in the future. It finds itself at the crossroads. It must either undergo transformation or fall into decay.

Dual Responsibility

One of the geographic laws applying to France is the importance of both the land and the sea. Her military organization is constantly adapted to this dual problem. It is illustrated in the laborious manner in which her national frontiers were established. At first, France was forced to maintain a watch principally toward the west, from whence in the middle ages the most violent attacks came by sea. After the sixteenth century, she mainly had to look eastward.

But even before this work was accomplished, the tendency to expansion was manifested both by land and by sea. In order to avoid the dangers of dispersion, France alternatively favored first one and then the other means of expansion. Possessing both an army and a navy, her attention was directed first to one and then to the other, according to the whims of the administration in power. There were insufficient resources to develop both at the same time. As a matter of fact, the periods in which France has been entirely free to make decisions have been rare.

Holding her own with two enemies at the same time—on the Rhine and on the seas—has always been a task that was too heavy for France. The fundamental mission of French diplomacy, her "classical system," has been to save her from such a test. Defeats on land have proved the more serious; they have jeopardized her independence and even her existence. Hence such defeats must be followed by energetic rebuilding. Throughout French history, the names of the leaders who have inspired such actions remain popular.

Present Military Establishment

On what basis should the present fundamental doctrine of the French military effort be planned? The principal factor, as indicated above, is the defeat of Germany. This permits a considerable reduction of French armament. Any idea of revenge of the type which haunted France after 1870 no longer appears proper. France will never see a more propitious opportunity for showing her pacific spirit, the intense desire for concord among nations which inspires her, and of which she in common with so many others has the most urgent need. Her ruined economy demands her consecration to reconstruction, unremitting labor, efficient means of production, and reestablishment of that thrift which constitutes her incontestible source of influence among nations. Though war potential may rest on industrial capacity, it likewise depends on financial power.

On the other hand, is it possible at present to build up a stable military organization in France? There still exist too many technical uncertainties of a future armed conflict. The international situation is uncertain, and unforeseeable changes in armament will occur which will affect tactics and operations. The United Nations organization presents an enigma. These and many other factors must be clarified before a nation can direct its efforts along any very definite line. An army is created to solve a definite problem. To attempt to impart to it too many different purposes at the same time is like a tool which is claimed to be good for many uses but which is useless when put to the test. Feverish haste today may

mean unpreparedness tomorrow. Of what advantage is it to be a year in advance if, when the critical moment arrives, we find ourselves behind?

Considerations of this nature influence the political parties in France when they recommend substantial economies in the national defense budgets. One would be deceived if he saw in this attitude an indication of dissatisfaction on the part of the country with its Army, or of neglect of the nation's security.

On the other hand, the consolidation of the French oversea empire cannot wait. The scattered peoples of the globe, whom fate has placed under the same flag, must be drawn closer together. The loosening of ties following the defeat of 1940, and the accelerated evolution of native populations since World War II, create a need for action. We must face the great peril of national dislocation. Thus, France once more finds herself faced with the historical problem of developing her land or her sea forces.

The problem calls for a navy which is capable of guaranteeing free communication between the different parts of the French Union. This does not mean an "imperial" navy, nor a navy which aspires to mastery of the seas. With her own resources, France is not able to acquire such a navy. One conclusion is therefore obvious: maintenance of the French empire cannot be thought of except in conjunction with the Anglo-Saxons. Only through formal alliance or benevolent neutrality will France be able to assist and protect distant peoples.

This does not mean material aid from the Anglo-Saxons. Let us not yield to the demoralizing lure of foreign aid. There is, however, a minimum of naval power indispensable to any colonizing nation. France must increase her merchant marine. She must create the necessary elements of a navy which is strong enough for her to fulfill (within the framework of her international friendships) all of her tactical, strategic, political, and economic missions. Her navy must not, however, be strong enough to give offense to any of these friends. It must be a navy which will appear to them to be capable of serving as a contributing force in case of a united conflict.

Alongside this navy, troops are required which will be adapted to service in the territories in which they are to operate, whether to maintain internal order or to defend them from aggression from without. Here we have the application of the general principle of an army created to fulfill a definite mission.

It is realized today that there are no more colonies. The name of the forces in outlying areas must be changed, but the principal features of the existing organization must be maintained. Certain modifications of structure may be necessary. When the colonial army was created, it was designed to fit into the framework of a general mobilization. All successive changes were made with such mobilization in mind.

The peace now established on the Rhine permits France to give full attention to her oversea forces and to saving her distant territories.

The situation likewise permits France to be more extravagant with regard to the strength of forces. The duty of Frenchmen, formerly limited in principle to defense of her European frontiers, is now extended to the limits of the French Union. There is no longer any need to compensate for a lack of recruiting in the mother country by native recruiting, and national morale can profit by the fact. Perhaps it was because France depended so strongly on her colonial natives for her own defense that she now sees herself threatened with the loss of her oversea empire. We should now extend to all Frenchmen the obligation of serving outside of France.

The oversea forces do not need the formidable equipment required in Europe. Their adversaries will be less well armed than the great belligerents of World War II. More often, they will have to fulfill the role of police. Relatively modest appropriations will be sufficient.

General Staff Responsibility

Each department is charged today with that portion of the national defense which concerns it. Total war places the country in a state of permanent mobilization, and preparation for war becomes the daily concern of governments in time of peace. The appropriate distribution of the various elements of this preparation seems to rest with the recently instituted general staff of the national defense. It has jurisdiction, with supreme controlling authority, over all the different activities.

Therefore, the central war administration no longer needs to occupy itself with anything but the forces of the home country, and this enormous task ought to be enough for it.

We have an idea of the manner in which these forces are to be organized from ministerial speeches, and particularly from a lecture by General de Lattre at the Staff School.

The organic concept which General de Lattre arrived at marked a return to the institutions of the last century, before the concept of the "nation in arms."

To be sure, the entire nation is still called into the service of the country, but the effort is no longer made to fuze it into a homogeneous mass of combatants. Combat zones have increased in depth; they extend over all national territory, the result of the increasing range of reaction-propelled weapons. The distinction between the front and the rear, between the combat zone and the zone of interior, is obsolete. There will be fighting everywhere, simultaneously. In this respect, again, there is a marked return to the past, since there is a return to feudal warfare as it was waged between adjoining provinces. But there is this difference: the enemy of tomorrow will not be a near neighbor but will be one who drops from the sky. It will be necessary to destroy him before he succeeds in consolidating on the ground and before friendly forces arriving by land can join him.

Let us not exaggerate, however. If an adversary comes from the Rhine, there will always be an interval of time, or of place, between the main body of his ground forces and his diversionary parachute elements. Unless this interval is small, he will expose himself to the same fate suffered by Montgomery's airborne divisions at Arnhem.

Under these conditions, "the placing of the entire country in a state of defense," said General de Lattre, "makes it necessary to distinguish between the territorial forces and the combatant body. Powerful strategic reserves must be capable of intervening in force wherever the enemy attacks." In other words, the mobilized forces will be divided into two parts. First, there will be a combatant body as powerful as we are able to make it according to circumstances, its organization depending on budgetary and industrial resources. Second, there will be a territorial defense force charged with security in all its forms—on the coasts, the frontiers, and in the interior. A satisfactory solution would be to model this army on the Swiss Militia.

Conclusions

During the transition period through which all the departments of our national defense must pass, the French military force must assume its functions in accordance with a fundamental order of priority. The German defeat this time is complete. Though the peace treaty yet to be signed may not produce the centuries of peace

brought about by the treaties of Westphalia, it will at least be longer-lived in its effects than that resulting from the Treaty of Versailles.

This permits us, for a time, to turn our attention away from the Rhine and toward the world in general. This is just the moment when the French oversea empire calls for the attention of all the nation. It is indeed possible, and at the same time necessary, to effect a somewhat traditional alteration in French policy.

First, we must reestablish a navy which meets the requirements of the French Union. Next, we must establish forces suitable for bringing back and maintaining peace in our oversea territories. Third, we must recreate a force in the home country which shall conform with the position which France will occupy in the world order. This is a task worthy of the highest degree of application on the part of those engaged in restoring French military power.

The Dutch Action in Indonesia

Digested by the MILITARY REVIEW from an article by Cyril Falls in "The Illustrated London News" (Great Britain) 15 January 1949.

INDONESIA has seldom been out of the news since the end of the war with Japan.

It was the policy of the Japanese government of the war years to represent to the peoples of the countries occupied by its forces—and of countries, such as India, which they did not succeed in occupying—that its mission was to free them from the domination of the white races. Japan posed as the champion of "Asia for the Asiatics," though, in fact, she intended to impose upon these countries her own domination. There is every reason to believe that it would have been a heavy one. Nowhere was this policy more successful than in Java, the richest and most highly developed island of the Netherlands East Indies.

Two prominent men in particular, Dr. Soekarno and Dr. Hatta, came forward to accept liberation at the hands of Japan, received high Japanese decorations, and exploited the labor and resources of the country in the interests of the conquerors.

It would be manifestly unfair to judge Asiatic collaboration with Japan by the same standards as European collaboration with Germany has been judged, though even in some countries, such as Bulgaria and Rumania, collaboration has been lightly passed over. It was natural that many Asiatics should regard Japan as representing Asiatic revolt against European interference. Even so, these two men might have seemed to go beyond reasonable bounds. However, they have been accepted as liberators by a large proportion of the population of Java, and in lesser degree by that of Sumatra. They are now respectively the President and Prime Minister of the Republic of Indonesia, that Republic which the Soviet representative on the Security Council described recently as "created in a great struggle for independence against Japanese imperialists." This Republic has been in control of portions of the two islands. The boundaries between its spheres and those of the Dutch have been delimited by agreement while negotiations about the future of Indonesia have been in progress. The Dutch proposal, accepted in principle by the Republican government, was the creation of a United States of Indonesia in which the Republic should be included, with a special link with the Netherlands.

In justification of the action which they took on 18 December, the Dutch allege that while all the non-Republican states have agreed to the setting-up of a federal interim government, the Republic has continually and deliberately procrastinated. They assert that there have been many serious violations of the truce, including the murder of some 300 Indonesian officials. They announce that about 11,000 Republican soldiers with arms have crossed into Dutch territory. The Republican reply to this allegation is that these men were merely returning to their homes. The Dutch liken the situation to that in Greece, because, they say, raiding forces could come into their territory and then slip back into safety beyond the truce frontier. They therefore decided to act. The Dutch plans were made in complete secrecy and their operations carried out with great skill. On the morning of 19 December, parachute troops secured the air field outside Jokjokarta, the Republican capital. Troops were flown in, captured the city, and seized the President, Prime Minister, and most of the other ministers. Road columns followed. By 30 December, these operations were reported as concluded, all principal towns having been occupied. Similar action was taken in Sumatra. Resistance was slight, the Dutch having 109 casualties in 10 days.

The United States and Australia were instrumental in calling an immediate meeting of the United Nations Security Council in Paris. A demand for a cease-fire and withdrawal was tabled. The Australian representative described the Dutch action as worse than Hitler's invasion of Holland, a phrase which even to those who supported his point of view appeared exaggerated. France, conscious of her own problem in Indo-China, vetoed a proposal to send a committee of the Council, including a representative of Soviet Russia, to the scene. The Dutch representative challenged the competence of the Council on the ground that the action of his government constituted no threat to international peace. The United States and the United Kingdom voted in favor of the withdrawal of the troops, but this proposal was defeated. The USSR abstained from voting on it, being interested only in a proposal of its own. This was perhaps a tactical mistake on its part, but otherwise it has lost no opportunity of exploiting the situation and denouncing imperialism. The Dutch promised to bring their action to an end in Java at midnight on the 30th and in Sumatra 2 or 3 days later. They also announced that the Netherlands Prime Minister was leaving for Batavia. The Council expressed its disappointment and then packed up.

Both internally and externally, the Dutch have engaged in a difficult and perhaps dangerous undertaking. Asiatic states have reacted sharply. The Prime Minister of India has spoken in threatening terms and told the Dutch that no more European imperialism would be tolerated in Asia. Both India and Pakistan have withdrawn flying facilities from the Dutch. It is not impossible that stronger action will be taken in some quarters. In Java itself, the occupation of the towns does not preclude partisan warfare. Indeed, recent experience shows that it can flourish in such conditions. Again, the Dutch now become responsible for the welfare and nourishment of some 20,000,000 people, after a bad rice crop. Any worsening of the situation as regards food will render hope of a peaceful settlement more remote. But the crux of the matter lies in the attitude of the Republican ministers. It is difficult to say whether negotiation with them, now that they are in the power of the Dutch, will prove any easier than it was when they were seated in power in their capital of Jokjokarta and Dutch troops were precluded by the truce from approaching them. Much depends on how

they act and how the people regard their action.

A good deal will also depend upon the verdict of world opinion. So far, it appears to be generally unfavorable and is supported by the views of the so-called "Good Offices" Commission, which was in Java at the time endeavoring to bring about agreement. The Dutch expected some hostility, and have, on the whole, been agreeably surprised that it has not been stronger. But the affair is not yet over. It is clear that the Netherlands government possesses the full support of its own country. The British government regrets the cancellation of the truce in this forcible manner, but it certainly does not entertain harsh feelings towards an allied and friendly state. Perhaps, also, the reflection that Britain herself, with the highest motives, has handed Burma over to anarchy and misery, will not be absent from her mind as she considers Dutch action in Indonesia. At the present moment, whenever a European and an Asiatic nation come into conflict, there is a general disposition to assume that the European must be in the wrong. If the Republican troops in Java had made a similar incursion into Dutch territory, it seems unlikely that an emergency meeting of the Security Council would immediately have been called.

The goal which the Dutch originally set for themselves was a promising one, which would, so far as can be seen, have contributed to the welfare of Indonesia and its usefulness to the rest of the world. They assert that their progress towards this goal, which is also desired by the other states of Indonesia, has been deliberately impeded by the action of the Republic, and that they had either to abandon it or to take the action which they have taken. As I personally prefer the record of the Dutch to that of Dr. Soekarno, I am prepared to believe them until I receive testimony to the contrary. I am less clear in my mind about the Dutch plea that the Republican government represents a minority in Java, because it may be founded rather on prejudice than on fact. It is hard to prove under the present circumstances. But even there, it would appear to be unfair to assume that the Dutch contention is untrue.

The root of the unrest in Indonesia and in other parts of Asia is to be found in the inability of the European states to protect the Asiatic peoples under their care from the invasion of the Japanese. Whatever may have been the case in India,

These are scenes of the Dutch action in Indonesia in December 1948. On the left, airborne troops on the Magoewo airfield; right, the troops move into Jokjokarta, Republican capital of Java.

no serious unrest or resentment existed in Malaya, Indo-China, or Indonesia before the war. I have not spoken of the Philippines, because they enjoyed independence and unrest had virtually ceased there. Though the United States rejects the whole colonial principle, it had no intention of withdrawing altogether from the Philippines. War stirs up passion and so opens the road to the extremists everywhere, but this occurred in Asia to a greater extent than elsewhere. Here the aspirations of the extremists were racial, and the so-called imperialists were all people of European race intruding from another continent. It is certain that every nation in Asia will one day be independent of all European control, though some of them are likely to exchange it for a heavier Asiatic but still alien control. Most of them are determined to speed up this process and find a great deal of support for this resolution in the outside world.

In no Asiatic country is there machinery to decide the issue by the means adopted in democratic countries, which are to ascertain the desires of the majority. This may be a form of machinery unsuited to those countries, but at least it provides a test for which there is no substitute but the will of the strongest.

At the same time, Asia has acquired a new technique of force, learned in the main from European teachers. It has learned that underground or partisan warfare may be far more efficient than opposition in the open field to better equipped but much less numerous forces. Where these forces cannot be defeated, they can often be worn out. They know that their governments pursue such enterprises with less resolution and self-confidence than was formerly the case. Even the attitude of the Dutch is different from what it would have been in such a case a generation ago, and the Netherlands government is negotiating with the men whom it took into custody. It has, however, carried out an extremely bold enterprise to end a situation which it had decided was intolerable.

If it now brings into being the United States of Indonesia, which represents its aim, it will have scored a remarkable success. Failure would, however, render its position in Indonesia more difficult than before the coup of 18 December. We must hope for a peaceful settlement.

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Our best assurance against the inevitability of another war lies in some measure of universal subordination of absolute national sovereignty to a community of nations and in support of that body with the full strength of all peoples. There is no absolute security either in full armament or disarmament; in militarism or in pacifism.

General Omar N. Bradley

How the Rio Treaty Works

Digested by the MILITARY REVIEW from an article in "Americas" March 1949.

ON 3 December 1948, at a simple but impressive ceremony in the Hall of the Americas of the Pan American Union, Ambassador Mario Esquivel deposited the Costa Rican government's ratification of the Inter-American Treaty of Reciprocal Assistance. With Costa Rica's action, two-thirds of the states that had signed the Treaty in Rio in September 1947 had deposited ratification, and the Treaty was therefore in full force among the ratifying states. The members of the Council of the Organization and some of the delegates to the Rio Conference who had signed the Treaty attended the ceremony at the Union. In 5-minute talks, the speakers reiterated their faith in the Treaty as a guarantee of Western Hemisphere peace and security. About a hundred newspapermen and photographers looked on skeptically. They and many other observers doubted that the event would make as much history as the speakers said it would.

But at noon on 11 December, as the Organization of American States (OAS) was preparing to give a luncheon in honor of Señor Juan Atilio Bramuglia, Argentine Minister of Foreign Affairs, word came from the State Department for United States Ambassador Paul Daniels that "an incident had occurred on the border between Nicaragua and Costa Rica." Ambassador Daniels said nothing during the luncheon, but just as coffee was being served, Ambassador Esquivel rose to answer an urgent telephone call from Costa Rica. Later he took leave of his colleagues and departed from the building. Some of the newspapermen already had an inkling as to what had happened, through the international news services.

Ambassador Esquivel was in a hurry. At 1700 that same day, he saw the Secretary General of the Organization at his home. An hour later, the Secretary General called at the home of the Argentine Ambassador, Enrique Corominas, Chairman of the Council. Presently, Ambassador Esquivel also called on Ambassador Corominas. He delivered a note stating that on the night of 10 December, "Costa Rican territory had been invaded by an armed force proceeding from Nicaragua." The invasion, it read, had taken place by way of La Cruz, near the northern border between Costa Rica and Nicaragua. It was estimated that the armed forces numbered about 800 men. "This action," the note went on, "is the climax of preparations that have been openly under way for some time in the Republic of Nicaragua, apparently by a group of Costa Ricans associated with the previous administration, whose purpose is the overthrow of the present Costa Rican government. A considerable number of nationals of other countries have taken part in the subversive movement." The Treaty was then invoked as follows:

"These facts constitute a situation which, by precipitating armed conflict in Costa Rican territory, endangers the peace of the Americans. On the strength of the Inter-American Treaty of Reciprocal Assistance signed at Rio de Janeiro in September 1947 and at present in effect with the ratification of 14 of the signatory states, my government has sent me specific instructions to request you to convene the Council of the Organization of American States, so that it may be informed of the situation described in this note and act provisionally as an Organ of Consultation, in view of the urgency of the matter."

Stressing the need for immediate action, the Ambassador's note added: "The rapidity with which these developments are taking place makes it imperative that the

meeting be called without delay. The troops proceeding from Nicaragua have already penetrated far into our national territory and some press notices have described the conflict as a war between Nicaragua and Costa Rica."

At 1500 the next afternoon, the Pan American Building was an oasis of activity in the stillness of a Washington Sabbath. The Ambassadors arrived, accompanied by their counselors and secretaries. Gathered in the tropical patio, the newsmen grumbled on learning that the press would not be admitted to the session.

When they took their places around the Council table, the members knew no more about what had happened in Costa Rica than the newsmen. As a matter of fact, they probably knew even less. They learned the contents of Costa Rica's note only when it was read before the Council. Not even the Costa Rican Ambassador or his government knew the real proportions of the disturbance. It later developed that only about 200 troops were involved, instead of almost a thousand, as originally reported. The scene of the fighting was Costa Rica's northern frontier, far from the capital of the republic. The Nicaraguan representative, who emphatically denied any official participation by his country in the revolt, possessed no more exact information as to the size and importance of the movement.

It was obvious that the Council could do nothing until it had more information. But from the start it was conscious of its grave responsibility, as well as of the possibility that a delay might result in irreparable damage to the peace of the Americas. Costa Rica asked that the provisional Organ of Consultation be set up immediately. This request was within its rights. But the provisional Organ of Consultation could not act until a meeting of Ministers of Foreign Affairs, the Principal Organ, could be called. Costa Rica asked that the frontier be closed by an international military force, made up of soldiers from Costa Rica, Nicaragua, and other American republics. Costa Rica also called for an investigating commission, and it requested the governments represented on the Council to sell it arms and military equipment to repel the attack. None of these steps could be taken by the Council in its regular capacity. It could act only as an Organ of Consultation, and that only after certain technical problems were ironed out.

At its first session, the Council limited itself—

1. To authorizing the Chairman to seek additional information.

2. To calling another meeting for the following Tuesday, to discuss the new information and decide whether to hold a meeting of consultation.

3. To sending telegrams to the Presidents of Costa Rica and Nicaragua, stating that the Council was studying the situation and would "take all measures tending to preserve the international peace and security of the continent."

This message may not appear quite consistent with the Council's decisions—as Council it had no authority to act—but it seems to express the feeling that, whatever happened, it was essential to give satisfaction the first time that a threat to the peace was brought up. The Ambassadors' cautious approach was not due to any hesitancy about taking action. Not for a moment were they tempted to reject the request for consultation, even if a legal basis could be found to shirk the responsibility.

Nicaragua maintained that for some time there had existed in Costa Rica a military group known as the Caribbean Legion, composed of Nicaraguans and nationals of other countries who conspired against the Nicaraguan government. Such a situation, if true, would be a menace to peace in Central America.

At the second session, the following Tuesday, the Council voted unanimously

to call a meeting of consultation of the Ministers of Foreign Affairs and to turn itself into a provisional Organ of Consultation. This done, its first step was to appoint a commission to investigate at first hand Costa Rica's charges. This 5-hour session put teeth in the Treaty by establishing certain standards for its application.

The OAS Charter provides for two types of these meetings of the Foreign Ministers. One is a meeting to consider urgent Western Hemisphere problems, without reference to the Rio pact. Any member state may ask the Council of the Organization to call such a meeting. The Council decides by an absolute majority whether a meeting should be held. The state requesting the meeting must demonstrate that the problem is urgent enough to be considered by such a meeting.

The second type of meeting—when a meeting of consultation is called to serve as an Organ of Consultation to enforce the Treaty—can be requested only by a state which has ratified the Treaty. Also, this type of request can be voted on only by states that have ratified. Again, an absolute majority vote is necessary to call the meeting. The meeting of consultation is limited to Ministers of Foreign Affairs of those American republics that have ratified the Treaty.

If a state had requested a general meeting of consultation of the first type, representatives of all 21 American states would have voted, and 11 votes would have been required for an affirmative decision. Such a meeting would have been attended by all the American States.

But the meeting of consultation that the Council decided to call in response to Costa Rica's request was of the second type. Fifteen republics had ratified at the time. Both Nicaragua and Costa Rica were excluded from voting. An absolute majority of the 13 States entitled to vote would have been seven; but all 13 voted in the affirmative.

Another interesting point is the authority the Council has, as such, before it assumes the character of provisional Organ of Consultation. Some maintain that the Council can make decisions in political matters only in its role of provisional Organ of Consultation. But at Rio, it was granted the essentially political function of deciding whether to convoke the Organ of Consultation. It can deny a request for a meeting of consultation, or it can grant it. There is only one set of circumstances in which the convocation of the Organ of Consultation becomes automatic on the sole initiative of the Chairman of the Council. This is the case of "an armed attack within the territory of an American State or within the region of security delimited by treaties in force," i.e., the Treaty of Rio. This provision was not in the Treaty, but was added by the Bogotá Charter, which has not yet come into full force.

In the Costa Rican case, only the speed with which the Council moved kept the situation from becoming an international conflict. A few hours after the decision to call a meeting of consultation, a commission had been appointed made up of four members of the Council—Quintanilla of Mexico, Bello of Brazil, Villegas of Colombia, and Daniels of the United States. The commission flew to Costa Rica and was back with its report by 24 December.

Nevertheless, some observers, principally in the United States, and some Latin American newspapers, still felt that the procedure might prove too slow for a large-scale crisis. Modern warfare, they maintained, leaves no time for such negotiation. In acts of violence like those recently witnessed in Indonesia, even the shortest lapse of time may be decisive.

These criticisms were aimed at the Treaty of Reciprocal Assistance. But they were superficial. The Treaty offers real-

istic solutions for every type of emergency. Its application in the Costa Rican case is not so obvious as in some other situations. Here is a summary of the measures authorized by the Rio Treaty:

In the event of an armed attack against an American State, the Treaty provides that each of the contracting parties may decide for itself what to do immediately. The Organ of Consultation "shall meet without delay," says the Treaty, to examine these individual actions and to agree on necessary collective action.

In any other type of aggression, consultation is called by the same procedure used in the Costa Rican affair. The Organ of Consultation passes on the aggression and the measures to be taken. Should a conflict arise between two or more American states, the Organ of Consultation, may issue an "as you were!" order to the contending states and may also act as peacemaker.

In all cases, the Organ of Consultation may order: the recall of Ministers or Ambassadors; breaking of diplomatic relations; breaking of consular relations; total or partial interruption of economic relations; stoppage of communications and transportation; and use of armed force.

But the Costa Rican case represented a very different situation. It was a threat to international peace, and not a disruption of the peace. No armed attack was made by one American state on another. No act of aggression was defined. But the Treaty has the power to put stronger pressure on more serious problems. All of which leads us to believe that no such problems will arise between the American states.

After their return, the Ambassadors reported to the Council. From the report, the dispassionate reader will gather that, while the incidents were not particularly serious in themselves, they produced distrust and recrimination that might bring a future, if not an immediate, threat to the peace.

The Organ of Consultation asked both governments to abstain at once from all hostilities. The Resolution stated that the Nicaraguan government should have taken adequate measures to prevent the development in Nicaraguan territory of a movement to overthrow the Costa Rican government and the crossing of the frontier by revolutionary forces.

Referring to the famous Caribbean Legion, the Resolution declared that the government of Costa Rica must prevent the existence in its territory of armed groups organized for the purpose of planning to unseat the governments of Nicaragua or other republics of the Western Hemisphere.

The Resolution asked both governments to observe the principles and ideals of nonintervention and solidarity embodied in the various inter-American agreements they had signed.

The Organ of Consultation further decided to continue in session until both Nicaragua and Costa Rica would abide by the Resolution. They also decided to send a commission of military experts to observe and report on the manner in which the two states carried out the instructions of the Resolution.

The action of the Council brought the incident to an end with the signing of a Treaty of Friendship between Costa Rica and Nicaragua in Washington on 21 February.

The Inter-American Program is not based on isolation. On the contrary, its spirit of cooperation, which constitutes the basis of its strength and success, is universal.

Manuel S. Canyes

Flame Warfare

Digested by the MILITARY REVIEW from an article by Captain Henry Sorensen in the "Canadian Army Journal" (Canada) August-September 1948 and October-November 1948.

THE first use of the flame thrower in warfare was made in the twentieth century by the Germans against the French lines at Melancourt on 26 February 1915.

The first employment of German flame throwers against the British was in July 1915, at the point of the Ypres salient near the ruins of the little village of Hooge. The attack is thus described in the official *History of the Great War*:

"The 8th Rifle Brigade held the front of the Hooge crater. The crater itself was untenable, owing to constant trench mortaring and strafing. The trenches, dry but dilapidated beyond measure, ran up to the lip on either side, with no definite connection around the crater. The sector had an evil reputation for being subject to incessant sniping and bombing, besides trench mortar and shell fire. But on the night of 29-30 July there was an ominous silence. No notice was taken by the enemy of the noise inseparable from a relief. Even a few bombs thrown by the newcomers into the German trenches, in places only 15 feet away, provoked no reply.

"Half an hour before the dawn, the trench garrison stood to arms and there was still complete quiet. Then at 0315, with dramatic suddenness, came the carefully planned German attack. The site of the stables of the chateau was blown up, while a sudden hissing sound was heard by the two companies of the 8th Rifle Brigade on either side of the crater. A bright crimson glare over the crater turned the whole scene red. Jets of flame, as if from a line of powerful fire hoses spraying fire instead of water, shot across the front trenches of the Rifle Brigade and a thick black cloud formed. It was the first attack on the British with liquid fire. At the same time, fire of every other kind was opened. . . .

"In a counterattack some 10 days later, the whole of the line concerned was won back. Two of the German flame throwers were captured by the 14th Division in this counterattack.

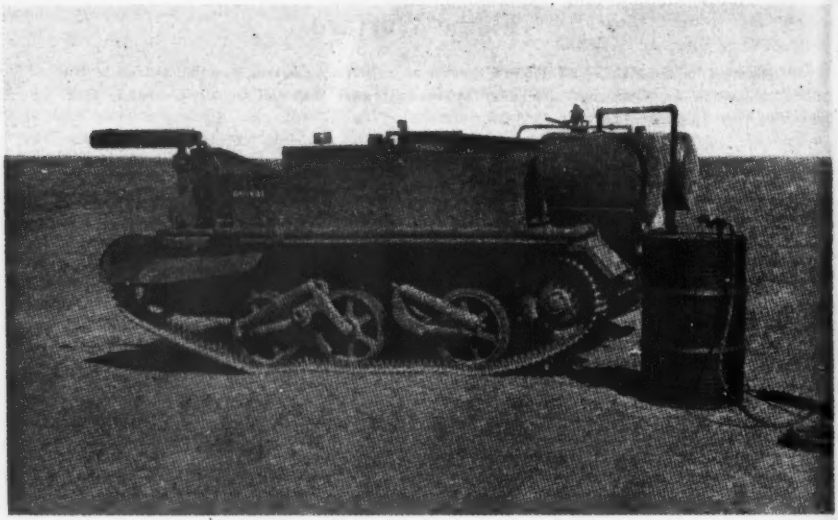
"These were found to consist of a cylindrical steel vessel about 2 feet high, and 15 inches in diameter, fitted with straps for carrying, and divided internally into a compression chamber and oil reservoir. The propellant was nitrogen at 23 atmospheres contained in the upper chamber. A short length of flexible hose ended in a nozzle in which was fitted the ignition device. As the oil emerged under pressure, it forced up the plunger of a friction lighter and ignited a core of fuse mixture surrounding the nozzle which remained alight long enough to enable a number of shots to be fired."

In this dramatic manner, the first of a long line of modern flame throwers was launched into twentieth century warfare.

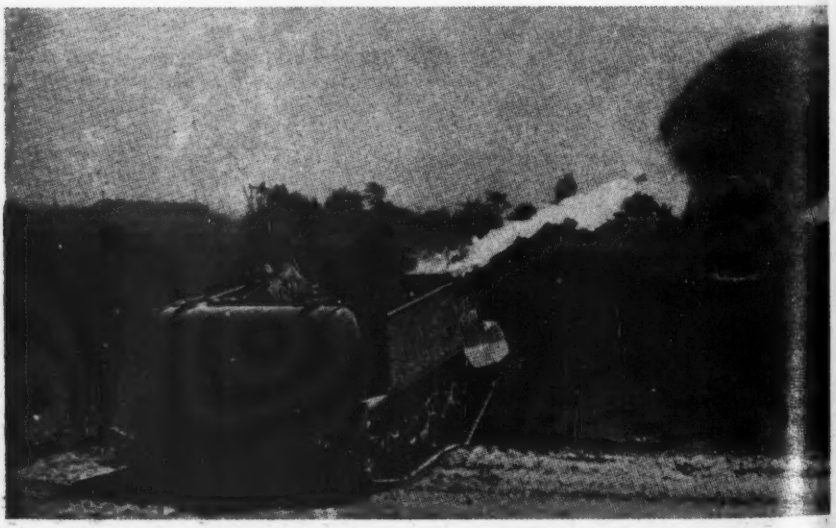
British Retaliate

The British were not slow in retaliating. In June 1916, before the Battle of the Somme, a portion of "Z" Company of the Special Brigade arrived in France with four large and 16 small portable machines. A ton of oil was required for each shot of the large machine. The machines could be dismantled into a larger number of parts, each of which could be carried by two men.

Several attempts were made to set up three of the large machines in front of the 18th Division, branches from the existing underground mine galleries being used for the purpose. The galleries were



The British and Canadians experimented extensively with flame throwers during World War II before adopting their operational types. Above, the Ronson Mk. IV, the forerunner of the Canadian carrier-borne flame throwers. Below, the Wasp Mk. 2C, a British weapon with Canadian modifications, used as an infantry-support weapon in Europe.



Above, the Sherman Badger Flame Thrower, essentially the same as the Ram Badger which the Canadians used in Northwest Europe. Below, the new Flame Thrower, Combat Vehicle, Main Armament, M5-4, a US weapon which was in the testing stage in 1947; the flame gun is mounted in a medium tank and throws a stream of liquid fire 100 yards.

repeatedly blown in by heavy shells, but by 30 June, two of the projectors were ready to fire. The flame throwers were so designed that the nozzles could be driven through the last remaining crust of earth by the pressure gas used for propelling the oil, so that their position would remain undisclosed until the last possible moment.

At zero hour on 1 July, two jets appeared out of the ground at a height of 2 and 3 feet above the surface. The ignition functioned perfectly and the two streams of oil were projected into the German trench, being traversed slowly from side to side. The flames were accompanied by dense clouds of black smoke, heavy machine-gun fire was opened, and the British infantry occupied the trench without opposition. The ranges obtained by the projectors, as measured along the burned ground, were 94 and 97 yards, respectively. The small portable machines intended for this operation were not used, as no opportunity presented itself.

The large machines were fired on one or two occasions within the next few weeks, but it had become evident that their local effect did not justify the great labor and difficulty of bringing them within range of their objectives.

Only on one other occasion, at Dixmude on 27 October 1917, was one of the large machines fired, and then only as a supplement to other weapons. Indeed, it was learned subsequently from prisoners that the flame thrower had caused no casualties, the garrison against which it had been directed having already fled in terror.

The Germans and French made use of the small portable flame throwers frequently until the end of the war, but no large-scale operation is recorded.

The conditions of the times gave the flame thrower little chance to prove its worth. As happened with the tank and has occurred so often with the employment of novelties, they were tried in small numbers, with the result that the full value of the element of surprise was not properly exploited.

The end of World War I in 1918 stopped most experimental work on flame throwers and little development work was done until after 1930.

Period Between World Wars

For the years between the two World Wars, very little information is available regarding the development of flame throwers. The reappearance of the flame thrower as a weapon of war occurred during the Italian-Abyssinian War, 1935-1936, when the Italians employed the first tank-borne flame thrower against the Abyssinians with reputed success. The tank employed, the CV 33, was very light—approximately 5 tons—with a machine gun and a flame gun mounted coaxially in the hull. It was of the trailer type, having a fuel capacity of 100 gallons and a range of approximately 40 yards. One of these was captured during World War II at Tobruk, but there is no official report of its use in action. A number of Italian portable weapons were encountered during the siege of Tobruk, however. German *PzKw II* flame tanks were used in the Spanish Civil War on a small scale.

The German Army used flame throwers during the invasion of Belgium in 1940, particularly as an assault weapon against the Belgian fortress of Eben Emael, with considerable success. Eben Emael, which commanded the approaches to the Meuse and the Albert Canals, was considered by military experts to be impregnable. When it fell within 36 hours to direct assault, fantastic explanations were put forward to account for what appeared otherwise to be an incredible feat. Actually, the essential strategy was not unlike that of the early Assyrians and its very simplicity defeated all the ingenuity of an ultra-modern defense system.

After a heavy aerial bombardment,

which did no material damage to the fortress but which created a certain amount of cover in the form of bomb craters, a carefully trained battalion of demolition engineers went into the attack. These troops were armed with flame throwers, hand grenades, and 7-pound blocks of TNT. The hazards involved were considerable, but with the aid of smoke screens and accurate covering fire from the antitank guns firing point blank at the embrasures of the fortress, a number of the engineers were able to get to the relative safety of the actual fortifications where they were beneath the line of fire of the defenders' guns. Once established in this area, they systematically began to demolish the works with TNT charges placed against sensitive parts, while the flame throwers opened up against the embrasures at close range. The German Army used flame throwers of the portable type spasmodically on their other fronts, mainly in Russia and in Italy. The portable types were used against the Canadians at Ortona.

British Flame Weapon

After the withdrawal of the British Expeditionary Force from the Continent in June 1940, every possible weapon was pressed into service for the defense of the United Kingdom. Petroleum products were at that time in reasonable supply and great efforts were made to develop new weapons quickly. A beach flame barrage, consisting of big pump units which pumped fuel oil through pipe lines to the beach, where nozzles extended under the shingle and under the sea, were installed on a number of beaches, so that in a few seconds a wall of flame could be established. Flame fougasses, consisting of batteries of 40-gallon drums, were set into the banks of defiles on the South Coast and were to have been fired electrically on the approach of the enemy. A portable flame thrower, the Marsden Mk. II (range 30 yards, weight 84 pounds, fuel capacity 4 gallons) was likewise available.

First Carrier-Borne Flame Thrower

Early in 1941, the Anglo-Iranian Oil Co. designed and built a carrier-borne flame thrower which was the forerunner of a long line of carrier flame throwers, culminating in "Flame Thrower Transportable No. 2 Mk. 2C," commonly called the "Wasp Mk. 2C."

This flame thrower was designed to fit on a universal carrier. A long-barrelled flame gun was mounted over the top edge of the front armor plate and operated by the Bren gunner. The fuel tanks were fitted on the sides of the carrier outside the armor. The fuel used was ordinary oil and creosote, the propellant was carbon dioxide, and the ignition was obtained by spraying a small quantity of the fuel over a hot plate. The range was only about 25 yards. The ignition was unreliable, and this flame thrower lacked many of the refinements of later models. By having the fuel tanks on the outside, the universal carrier could still be used in its normal role, and maintenance on the engine could readily be carried out. These were two important factors lost sight of in some of the later designs.

This carrier flame thrower was demonstrated to most of the leading military authorities in the United Kingdom. The Commanding General of the 1st Canadian Corps was quick to appreciate the great morale effect of flame and to foresee the possibilities of developing a much superior flame weapon. He immediately took a keen interest in the development of flame weapons and selected a Canadian engineer battalion to carry out tests. This battalion did a large proportion of the initial flame trials in the United Kingdom.

Later Developments

Design was begun in the summer of 1941 on a weapon which was later to be known as the Ronson. The requirement was for a flame thrower to fit on an existing vehicle without interfering with the primary role

of the vehicle. The universal carrier was chosen because it was cheap and plentiful. The Ronson flame gun was mounted over the left top edge of the front armor plate and connected by a fuel line on the left outside of the carrier to the two 30-gallon fuel tanks mounted externally on the rear platform. Using ordinary fuel oil, it had an effective range of approximately 50 yards.

The Cockatrice flame thrower was designed by the British Petroleum Warfare Department for air field defense against enemy paratroops in the days when that danger was imminent in the United Kingdom. It was mounted on an armored car of poor cross-country performance. The design of the flame gun was based on the Ronson principle, but due to the nature of its intended employment it was made capable of firing vertical and horizontal flame shots. The fuel tanks of 300-gallon capacity were mounted internally. The Royal Air Force and Fleet Air Arm were equipped with this weapon, which is now considered obsolete.

With the Hornet, a new principle in flame thrower design was introduced. The equipment functioned quite satisfactorily, but it proved far too complicated and cumbersome to put in the hands of troops and the project was dropped by both the British and Canadian experimental teams.

While a portion of the experimental flame effort was devoted to overcoming the "bugs" in the Hornet, another portion was concerned with a new design. In August 1942, this made its debut in the form of the Wasp Mk. I. This flame gun attained a range of 80 yards with ordinary fuel oil. It was complicated and unwieldy, and the two fuel tanks were internally stowed. It was not acceptable to First Canadian Army, as the internally stowed tanks greatly increased the carrier engine maintenance problem and also decreased the flexibility of tactical employment.

The tendency by now was towards simplification of flame-thrower design which had become, in some cases, too complicated for practical field use. By February 1943, a prototype of a simplified flame thrower called the Barracuda had been designed and built by the Canadian Petroleum Warfare Experimental Unit. This equipment was the immediate forerunner of the Wasp Mk. II. The Barracuda gun mounted in the forward light machine-gun aperture had a range equal to the Wasp Mk. I, but with a much faster mechanical action enabling it to fire quick successive shots of flame. The weight of the flame equipment was greatly decreased, thereby relieving the overburdened carrier. Tactically, it also brought an improvement by having only one fuel tank, making room for a third member in the carrier crew.

The British experimental team decided to try out the Barracuda flame-gun principle in a flame gun of similar design. This flame gun was called the Wasp Mk. II, and the prototype was completed and demonstrated in October 1943. The flame gun proved very satisfactory, both from a mechanical viewpoint and in the range attained, which was, if anything, better than that of the Barracuda. It had two internally stowed fuel tanks with a total capacity of 100 gallons and of similar design to the tanks of its predecessor, the Wasp Mk. I. These again proved a decided handicap in maintenance and tactical employment. First Canadian Army decided to adopt the Wasp Mk. II with certain Canadian modifications.

The British Wasp Mk. II with certain Canadian modifications was named the Wasp Mk. 2C. The main modification was the substitution of an external fuel tank (capacity 80 gallons) on the rear platform in place of the two internal fuel tanks. The carrier maintenance problem was thus overcome, and the tactical flexibility of the equipment was greatly increased by creating the space necessary for a third crew member, who could give

added fire protection and maintain control in the attack. This carrier-borne flame thrower proved highly successful as an infantry support weapon within the battalion throughout the campaign in Northwest Europe.

The present British operational tank-borne flame thrower trailer type is the Crocodile mounted in a Churchill tank. The normal armament is retained except for the hull machine gun which is replaced by a slightly modified Wasp gun. The trailer contains 400 gallons of fuel and accessories necessary for operating the flame equipment. The trailer is armored against small arms, armor-piercing ammunition, and is connected to the tank by an armored link. The trailer can be jettisoned in an emergency. Since it retains its main armament, the Crocodile can be used as a normal tank. If necessary, the trailer can be disconnected to improve maneuverability.

The Badger armored flame thrower was a purely Canadian development, the design of which was originated in the field during the campaign in Northwest Europe. This flame thrower consisted of the deturreted Ram tank chassis, which was used as an armored personnel carrier, in which there was mounted a Wasp Mk. II. The Wasp gun was mounted in the hull machine-gun mount, the fuel tanks, with 100-gallon capacity, being internally stowed. The turret ring was covered with a thin steel plate on which was mounted a small cupola with a Browning machine gun. The cross-country performance of this fire thrower was excellent, being that of a lightened Ram tank. The Badger was used in small numbers with considerable success in operations in Northwest Europe.

The United States Army has developed and used several types of tank-borne flame throwers. Development is continuing along several divergent lines, varying from flame equipment replacing the main tank armament to auxiliary equipment over and above normal armament.

The Russians employed flame throwers against the German Army, but very little is known about them.

Flame-throwing equipment has been mounted on Landing Vehicles Tracked for assault landing purposes, and much consideration and thought has been given to this project. Several successful prototypes have been developed using standard flame-thrower equipment. One of the latest models mounted two interconnected Wasp equipments in an LVT Mk. 4.

The ideal flame thrower has not yet been built. There is much to be desired in the present types, and experimental work is still proceeding in many countries towards this end.

The necessity of adapting to technical advancements leads to stimulation of intellectual activity in the army, based on a powerful organization of scientific research and intelligence.

General de Lattre de Tassigny, France

The General Characteristics of War

Translated and digested by the MILITARY REVIEW from an article by General L. M. Chassin in "Informations Militaires" (France) 10-25 May 1948.

WAR is a collective phenomenon, for there is no such thing as war between individuals. Furthermore, it is the clash of two human groups which are organized and which possess comparable material civilization. It is not war when a European state attacks a black tribe of Central Africa. In this case we speak of expeditions.

War possesses a subjective characteristic. It is a means of attaining an end. For each of the human groups engaged in a conflict, this end is the imposition of its will on the other. As Clausewitz said, war is the continuation of a nation's policy.

War is also an act of violence. There is no war without armed conflict and bloody combat. It is true that there have been decisive battles which ended with little or no loss of life, as in the case of some fifteenth century battles. If World War II had ended in May 1940, 9 months after being declared, there would have been few casualties. A state of war, in fact, does not necessitate any real hostilities. Nevertheless, the characteristic of violence is to be retained in our definition. Even though it is not employed, violence is authorized and legal.

Depending on the characteristics which they desire to emphasize, authors have given war many definitions.

Clausewitz defined war as: "an act of violence whose purpose is to force the adversary to do our will."

Quincy Wright, author of *Study of War*, defines it as: "a violent clash between different, but similarly obstinate, groups."

Thus, we may say that war is the violent means employed by one human group to impose its will on another group of equivalent civilization.

Before we attempt to determine whether there are any general laws which will permit foreseeing the outbreak and the development of conflicts, we must determine the "elements" of war from the strictly military point of view.

These elements are of two general types: material and moral.

The Chief

At the head of a military organization we find the chief. In the days of the semi-independent armies which operated far from their national territory, there was no doubt that the chief was the general in command of the army. Today, this is changed. The over-all direction of war now rests with the government. But in military organizations, the chief still remains in all echelons of command.

The military chief must possess knowledge and character. Knowledge has become increasingly important to the military leader over the span of years. Military knowledge is mainly a matter of both military and general culture. As for character, it is unfortunately rare.

Troops

Technical knowledge and morale are also requirements of the second element of war, the troops. The necessity of possessing a good understanding of weapons seems evident. The troops must understand not only their own weapons but also those of the other armed forces and those of the enemy. If French soldiers had been more familiar with the capabilities of the German *Stukas*, there would doubtless have been fewer panics on the Meuse in May 1940. As for morale, it has been often stressed, but little used.

Between the theories of Colonel de

Grandmaison, the apostle of the offensive at any cost, and those of General Fuller, who considers that morale counts less than 1 percent in obtaining victory, there is room for a happy medium. It is true that the importance of armament constantly increases, but there is always the man behind the weapon to be considered. There will always be panics as well as heroic exploits to upset our calculations.

We must consider another very important matter, the "rules of the game." Generally speaking, officers in command of modern armies follow tactical and strategic principles and rules which are derived from preceding wars and which appear to be basic.

Officers are accustomed to dealing with tactical problems on the map and of maneuvering theoretical troops who are arbitrarily attributed the average qualities of courage and resistance. In map exercises, therefore, there is never panic or heroic resistance. Rommel and Guderian, no doubt, would never have crossed the Meuse in a war game—at least, not so easily. As a result of these prior conceptions, a military leader who faces a particular situation automatically tends to apply the rules of the game as he has come to know them.

In the combat accounts of 1940, one is struck by this general situation: "My division," says such and such a general, "was holding perfectly in the face of the German attack. But I learned that the division on my left was falling back and uncovering me. Therefore, I ordered my forces to fall back."

If we read the report of the general on the right, we see that it was this withdrawal which uncovered him and led him, also, to fall back.

On the contrary, when the Germans arrived in Russia, they ran up against generals who did not follow the rules of the game. When uncovered or surrounded, the Russian divisions did not surrender. They continued an organized resistance. Groups of Russian soldiers, often far behind the German armored points, continued moving eastward and finally succeeded in rejoining the main bodies of the Russian forces. Some of these groups were annihilated, but they cost the Germans heavily in losses and delay. Isolated German groups in 1945 used the same system against the Russians.

The military leader must be adaptable and must never ignore the human factor.

Resources

The third element of war is made up of resources: men, armament, supplies, and transportation. Resources have become increasingly important and require great numbers of workers and adequate finances. The number of personnel needed for manufacturing arms and supplies to support the combatant on the field of battle has been increasing since the dawn of history.

Additional Elements

In addition to the three principal elements of war, four additional elements are generally recognized. They are terrain, time, frictional factors, and chance.

Terrain is one of the eternal constants which must always be taken into account. Time played a leading role in Poland in 1940 and in Russia in 1941. Its influence will doubtless diminish in the future, but it cannot be neglected as long as it is necessary to occupy the terrain with men. The frictional factors include what is called the "fog of war" and the tendency of operations to slow down. The "fog of war" involves ignorance of the enemy. We attempt to penetrate this fog by espionage, patrols, and reconnaissance. The enemy, on the other hand, attempts to keep us in ignorance. It is this "fog of war" which makes warfare an art and tests the intuition of the military leader. The slowing down of an operation, which

we might call "braking," is the second frictional factor. Regardless of the power of the initial attack, men become fatigued, tanks break down, and supply difficulties increase. In the last war, when the range of gasoline supply trucks was reached, gasoline had to be supplied by air. Great offensives were momentarily checked by various "braking" factors.

Lastly, it cannot be denied that chance plays a great part in war. A perfectly planned maneuver may fail because of an undelivered message. The weather, which favored Hitler in Poland, was against him in Russia. Chance gave Eisenhower the Remagen bridge. The whole secret is to know how to profit from the opportunities which chance may present and not to be crushed by the unkind blows of fate.

The Evolution of War

The history of war is generally divided into four periods. The first is the prehuman period, which was dominated by animals and the direct ancestors of man.

The second period is that of primitive warfare. It began with the appearance of man a million years ago and ended with the birth of the first civilizations.

From the tactical point of view, primitive warfare began with the individual encounter of two hunters. Soon it was characterized by the ambuscade, or the surprise attack, with a short period of combat and a rapid retreat. The offensive shock weapon evolved from the wooden club, the stone spear, and the axe, to the lance and sword of the bronze age. Offensive ballistic weapons included the bow, the sling, the boomerang, the bola, the simple lasso, and the blow-tube. Except for leather or wood shields, protective equipment was almost unknown. Gradually, a class of warriors assumed importance in the tribe, usually providing the chief from among its members. The ambuscade gave way to the battle in close ranks, and the idea of the maneuver began to appear. Courage and discipline developed. The shock weapon gradually gained the ascendancy over the ballistic weapon. All these changes obviously led to a considerable increase in the losses sustained in combat.

The third period extended from the dawn of the first civilizations to the time of the Renaissance. The cannon was discovered in this period.

The technical characteristics of war in this period were as follows:

1. Man learned to make use of certain animals in warfare, the horse in particular. The dog, the elephant (one of the first decisive weapons of history), and the camel were domesticated.

2. Man learned to make use of machines for augmenting the propulsive force of ballistic weapons. Remarkable siege machines were devised to hurl stone missiles weighing many pounds.

3. Man learned to protect himself with armor and to make use of fortifications. The construction of enormous ramparts was accomplished by the labor of many workers.

4. Finally, naval warfare appeared.

Wintringham's Theory

In considering the history of armament, it is interesting to note the theory developed by the English writer, Wintringham, in his book on *Weapons and Tactics*. Wintringham points out that three times, with great periods intervening, armored forces have crossed the Meuse at Sedan. These forces marched eastward with Caesar and westward with Othon and von Brauchitsch. The first time they went on foot; the second time on horseback; the third time in tanks. Wintringham divides military history into six alternating periods. Three of them are characterized by the absence of armor and three by the presence of armor. The first "nonarmored" period extended from

prehistoric times to the battle of Platea, when the armored Greeks defeated the unarmored Persians. The first armored period extended from 479 B.C. to 378 A.D., when the Goth cavaliers defeated the last of the Roman legions in the battle of Adrianople. This period is characterized by the Macedonian phalange and the Roman legion. During the second "nonarmored" period, from 378 to the battle of Pavia in 774, the supremacy of light cavalry armed with arrows was demonstrated. This period was followed by a second armored era, from 774 to the battle of Crecy in 1346. It was an armored cavalry period. In the battle of Crecy, the Gaul archers defeated the armored cavaliers. The third nonarmored period began. It continued until the appearance of the modern tank in 1917. Since 1917, we have been in the third armored period.

Armor was able to reappear in 1917 because of the internal combustion engine. It thus became possible to pass through the defensive network of the enemy's fire at not too great a cost. With the tanks of 1940, it was possible to resume the offensive.

But this advantage of the offensive did not last. In Russia in 1941, the armored division encountered defenses which were mobile, continuous, and disposed in depth. In 1942, the armored forces were nailed down by fighter-bombers.

Tanks, therefore, are on the decline. In attempting to protect themselves from hollow charges, bazooka fire, and rockets fired from planes, tanks would become so heavy that they would lose their mobility, hence their usefulness.

Therefore, the third armored period has doubtless come to an end until such time as nuclear energy can be applied to propulsion. Until then, it will be necessary to give up the idea of total protection and be satisfied with only partial protection.

The main point to be considered, however, is not that of possessing dominant weapons. More important is the organization of the army in accordance with these weapons. The French army of 1939, for example, was organized the same way it was in 1914. It was formed around the machine gun and field gun. The German army was organized around the tank and the airplane. Even if the French had possessed as many tanks and planes as their opponents, faulty French organization would have been a considerable handicap. The role of the clear-thinking military chief, therefore, is to determine in advance the dominating weapons of the future, and then to conceive and to organize appropriate tactical formations around them.

Conclusion

It must be stressed that the general laws of war are open to conjecture. We must therefore seek the invariable constants in our studies.

There are two constants: the terrain and man.

Geographical and geological factors remain unchanged. Distances, altitudes, winds, storms, seas, and deserts may decline in importance but they remain. Therefore, we must carefully study geography. Geopolitics must be brought up to date and adapted to the air age. We shall see that old concepts are still valid and that impelling forces are still exerted in the same direction. We shall also see that the fact that the earth is round has not yet been sufficiently studied from the military point of view.

At a lower echelon, we must study theaters of operation and their logistics, which involve geographical constants.

The second element, man, is always back of the machines and the robots. It is man who creates and operates them.

Man, himself, should not become a robot. On the contrary, in this technical age, he must raise himself to higher

levels. There is a continuing necessity for education. In the case of the soldier, this means military education.

In short, the invasion of science into the military domain forces us to use and to direct scientific research. It is not pleasant to acknowledge that it was the planned research of national defense that made possible the manufacture of the atomic bomb. But what are we to do? It is the task of those in control of the government, not the military, to create the peace which we all desire. It should not be forgotten that during the last conflict the armies and their chiefs operated under the laws of war. Except in rare cases, ambulances were respected, prisoners were treated correctly, and the enemy wounded were given care.

Officers of the future must have a thorough scientific education if they care to rise to positions of high command. Their qualifications will be similar to those of a planning engineer in large industries.

But knowledge alone is not enough. It is also necessary to know how to organize, study a situation, make decisions, express them, direct their application, and prepare reports. These are matters involving methods, which require an extremely thorough study of staff problems.

An Examination of Air Superiority

Digested by the MILITARY REVIEW from an article by Air Commodore L. MacLean in "The Fighting Forces" (Great Britain) April 1948.

IN attempting to define air superiority, Lord Tedder has made the following assertions:

1. "The outstanding lesson of the war was that 'air superiority' is the prerequisite to all war-winning operations, whether at sea, on land, or in the air. In other words, in order even to begin to wage war successfully, it is necessary to arrive at the situation in which the enemy air opposition is unable to interfere effectively with our own operation. That is what we mean by air superiority.

2. "The fight for air superiority is not a straightforward issue like a naval battle or a land battle; it is not even a series of combats between fighters. It is frequently a highly complex operation which may involve any or all types of aircraft. It is a campaign rather than a battle, and there is no absolute finality to it so long as any enemy aircraft are operating.

3. "There is in fact no rule-of-thumb solution to the problem of securing air superiority, no simple formula. The fight for air superiority is in fact air warfare expressed in other words. Even more than sea warfare or land warfare, it has an almost infinite variety. There is nothing absolute about air superiority so long as the enemy can operate any aircraft."

Condensed to essentials, these three paragraphs resolve themselves into this simple thesis: Before we dare to embark on any major operation of war, it is necessary for us to secure air superiority. Air superiority, however, can only be insured by the absolute destruction of the enemy's air force, which in turn may well require a complete campaign. Overlying all is the suggestion that air warfare is so involved and infinitely variable that, in its complexity, it far transcends sea or land warfare.

In the face of assertions so flatly unequivocal, it is startling to find in the same lecture an equally firm statement which, presumably made to support the

lecturer's argument, in fact entirely refutes his main thesis. He states: "The Germans had, at the beginning of the war, a simple formula for getting air superiority at the very outset. The initial blow in a campaign was an all-out surprise attack by bombers, dive-bombers, and fighters on the opponent's air bases, sometimes accompanied by parachute and airborne landings. The second stage was the destruction of the aircraft factories."

The extracts quoted above are the considered pronouncements of the head of that fighting service which, by government decree, now holds first place in the Imperial Defense System. As such, they merit the closest attention. As authoritative pronouncements, they invite study and analysis in the light of events as they have actually occurred, both in World War II and in World War I.

The three paragraphs first quoted are general assertions completely unsupported by factual evidence. The statement that the Germans had a simple formula for getting air superiority by an all-out initial attack on the enemy's air bases, followed by the destruction of his aircraft factories, however, is explicit, specific, and open to examination in the light of actual events. Let us study these events.

Polish Campaign

In the Polish campaign, the initial blow was struck by "armor" supported by "air." Its aim was "to destroy Polish military strength and to create a situation in the east which satisfies the requirements of defense." On the first day of the war, the whole weight of the German air attack—a numerical superiority of three or four to one—was directed at two main groups of objectives. The first wave attacked Polish air fields, training centers and military bases. The second wave attacked troop columns, railway junctions, means of transportation, and lines of communications generally. Within a few hours, the Germans had achieved not air superiority but also the complete impotence of the Polish General Staff to move forces to intercept the onsweeping invasion by the German tank columns.

Danish-Norwegian Campaigns

In the Danish and Norwegian campaigns, the initial blow was by sea. Hitler's orders, in respect to the air operations, were as follows:

"The part of the Air Force detailed for the purpose of the *Weseruebung* (Danish-Norwegian campaign) will be tactically under the orders of Group XXI (army command detailed for the campaign). After the completion of their task, they revert to the command of the Commander in Chief, Air.

"The employment of the forces which are under direct Naval and Air Force command will take place in agreement with the Commander of Group XXI.

"The Air Force will provide squadrons the primary object of which will be demonstrations and dropping of leaflets. Full use of the existing Danish ground defenses and air defense must be insured.

"The Air Force, after occupation has been completed, will insure air defense and make use of Norwegian bases for air warfare against Britain."

These orders, so far from showing a desire to obliterate the opposing air-defense organization, aim, on the contrary, at preserving it as an asset for future use.

Campaign in the West

In the campaigns leading to the seizure of Holland and Belgium and in the invasion of France, the initial strike was, as already described against Poland, by means of armor supported by air. The objectives for air attack were, broadly speaking, similar to those in the Polish campaign. In each of the campaigns quoted, the opposing air force was obviously a primary objective for direct attack, but in

company with other equally important objectives whose destruction was necessary to the progress of the military campaign. It would appear, therefore, that so far as the Germans were concerned, the attainment of air superiority was but incidental to the principal and ultimate military aim—the occupation of territory. In short, they owed their success to the integration of all their resources in concentrated pursuit of one common object or aim.

Even in the special and peculiar circumstances attendant on any attack on Britain, Hitler's directive regarding the employment of the *Luftwaffe* is quite clear. Issued on 16 July 1940, the instructions were:

"The Air Force will prevent all enemy air attacks and will destroy coastal defenses covering the landing points, break the initial resistance of the enemy land forces, and annihilate reserves behind the front. The accomplishment of those tasks will require the closest cooperation between all individual units of the Air Force and the invading army units. In addition, roads used for troop movements will be attacked and approaching naval enemy vessels engaged before they can reach the embarkation and landing points."

Documents, facts, and events combine to testify against Lord Tedder! In no theater of war did the Germans pursue the illusion of air superiority in the sense indicated by him.

The Desert Campaign

The German technique has, perhaps, its clearest illustration in the Egyptian Western Desert and in Libya, where the Germans were always numerically inferior. In general, they avoided engagements with our fighter sweeps, but employed concentrations of fighters at decisive points to cover key operations, ground or air. Of many examples, the most striking episode is perhaps the escape of Rommel's armor after it had been trapped in the "Cauldron," with mine fields hedging it in west, south, and east, and superior British forces converging from the north. Briefly the facts are: on the night of 27-28 May, Rommel moved a strong force of armor south of Bir Hachim and around the British left flank. This force then turned north, having the defended area of Bir Hachim, two mine fields and the Gazala defenses on its left. After some days of fighting in the British back areas, it withdrew southwards into the mined area known as the Cauldron. Here, completely hemmed in, cut off from it bases and short of ammunition, fuel and food, it would have appeared to have been the perfect target for bombing. Instead, employing an Italian armored force, dive-bombers and a concentration of local fighter cover, Rommel contrived to beat a passage through our western mine field, pass his force through this narrow funnel, replenish it, and then stage a counterattack back into the Cauldron.

The effect of these operations was to compel the withdrawal of the Eighth Army from the Gazala Line with the ensuing exposure of Tobruk. Rommel lost no time. Tobruk had long been a menace on his flank. On 20 June, easing his pursuit of the Eighth Army, he moved against Tobruk and attacked from the southeast with a concentration of dive-bombers and armor. In 24 hours he had captured the fortress which had withstood assault and siege since early in 1941. Then, with his left flank secure, he swept again in pursuit of the Eighth Army, stopping only when he encountered fresh troops and the prepared position at Alamein within 60 miles of the Nile.

Throughout this period, the Middle East Air Staff was claiming absolute air superiority. Therefore, we have in this episode the example of a German force pressing on to victory in the face of a numerically superior enemy and apparently ignorant of the fact that it had not

complied with the rules requiring it first to secure "air superiority."

British Operations

In contrast with this, let us compare the effect of Lord Tedder's own theory on the conduct of our own operations. General Cunningham began the fourth Libyan campaign from a new concentration area deep in the desert on 18 November 1941. The Eighth Army moved out in a westerly direction to outflank the German main defenses on the coast. The spearhead of the movement was three brigades of the 7th Armored Division. On 19 November, when the general direction of the movement had changed to the north, the 4th Armored Brigade was discovered by German air reconnaissance and subjected to devastating attack by dive-bombers and tanks working in integrated cooperation. The whole British force became involved and a confusion of fighting ensued during which the initiative passed to Rommel.

On the night of 17-18 November, preceding the opening of the British offensive, torrential rain had swept the bulge of Cyrenaica from Barce to Sollum, waterlogging the Axis airfields and immobilizing the Axis Air Force. The storm passed over the sea to the north of the British positions, leaving the Royal Air Force airfields wet but still serviceable. Here was an opportunity for a coup, probably without precedent. Had dawn seen every available fighter and bomber turned on a low-flying airfield attack, the enemy's air power, bogged on flooded airfields, might well have been eliminated before the land forces moved. With the first critical phase of the movement unobserved, the whole course of that battle, and the subsequent campaigns, might have been different.

In the event, what happened? The scale of high-altitude bombing of airfields was increased and augmented by some fighter attacks. But the main fighter effort, as the sortie records for that day show, went into the quest for air superiority in powerful sweeps at great altitudes. By noon, the opportunity had almost dissipated itself under the heat of the midday sun. On the following day, German air reconnaissance picked up the British armored columns with the incalculable results already mentioned.

In the Pacific

The futility of the theory that "air superiority is the prerequisite to all war-winning operations" is perhaps more mercilessly apparent in the Pacific War than elsewhere. The opening move, in the Pacific, was the destruction of the American fleet in Pearl Harbor by an attack whose phenomenal success, logically exploited, might well have been decisive. The attack was made by carrier-borne aircraft in the face of a much stronger land-based air force, which incidentally was destroyed as a secondary objective by lowflying bombers and fighters while the main attack was being made on the fleet. There was no preceding struggle for air superiority.

It will be seen that the same applies to the decisive battles in the immediately ensuing period, when both numerical and strategical superiority lay with the Japanese.

The battles of the Coral Sea in May, and of Midway in June 1942, correlated, were the turning point of the war, and marked the beginning of the Japanese recession. Both were sea battles, won by American dive-bombers and torpedo aircraft acting in coordinated cooperation, often without even fighter cover and certainly without any preceding struggle for air superiority.

The battle of the Bismarck Sea, in which a Japanese troop convoy of 22 ships heading towards New Guinea was completely annihilated, was the deathknell to Japanese land operations in the

South Pacific. On the other hand, had the movement been successful, a Japanese invasion of Australia might well have been the outcome.

The technique of air attack used by the Americans deserves description. The main attack was led by B-17s bombing from 7,000 to 8,000 feet. This forced the convoy to open up. Some B-25s then attacked from about 4,000 to 5,000 feet. This was immediately followed by a combined masthead attack featuring low-flying Beaufighters, which carried out a straight deck strafe, and B-25s and A-20s which dropped 500-pound bombs. The whole operation was covered by two squadrons of P-38s and one squadron of P-40s, the former engaging the Japanese fighter escort of about 20 Zeros. The Americans lost one high-altitude B-17 and three P-38s. Apart from the actual fighter engagement on the spot, there was no preceding struggle for air superiority.

The operations to capture the Japanese base at Munda in the Solomon Islands in July 1943 provide a typical example of the economical use of fighters by means of concentration at the decisive point in an amphibious operation. The American base was at Guadalcanal, 250 miles from Munda. The tasks before the American fighters were to cover the movement of ships, to prevent Japanese air interference in ground operations, to defend the main base at Guadalcanal, and to protect the various long-range attack and reconnaissance missions emanating from Guadalcanal. The relative strength in fighters at this time was: American, 215; Japanese, 190, with 100 more available in New Guinea for reinforcement.

Six squadrons, totaling 96 aircraft, were detailed by Admiral Halsey to cover the assault on Munda. The squadrons established a standing patrol of 32 airplanes to operate from dawn to dusk, with Rendova Island, 30 miles south of Munda, as their focus. This patrol had a fourfold task, namely, to protect shipping coming into the focal area at Munda, to protect the bombers attacking Munda targets, to support the ground operations, and to prevent Japanese air intervention.

The landing was completely successful and the Rendova patrol claimed 170 Japanese aircraft destroyed in 3 days. That is to say, the various requirements for protection of the American forces and the struggle for aerial domination were fought out simultaneously by one and the same force, while land and sea movements in pursuit of the main aim were in progress.

Comparative Losses

Operating in such conditions, the combat losses of one American heavy-bomber group—picked at random—of four squadrons, over a period of 12 months, were: shot down, 6; missing, 16. Compare this with the situation disclosed by Air Marshal Harris in *Bomber Offensive*. He describes one daylight bombing operation during the comparable period in 1943: "On 17 April, 12 Lancasters were dispatched to bomb the M.A.N. works at Augsburg. The attack was very carefully planned; Augsburg was far beyond the then range of fighter cover, but Fighter Command laid on diversionary sweeps which, however, did not go altogether according to plan. The Lancasters also flew at a very low level, because it was at that time difficult to detect very low-flying aircraft by radar and also because this gave some protection against fighters and flak. Seven out of the 12 Lancasters were missing. This loss was not excessive in proportion to the importance of the objective and the serious damage that was done to it. But the loss did demonstrate beyond all question that daylight attacks on Germany could at that time only be carried out by Bomber Command at a prohibitive casualty rate."

A loss of nearly 60 percent per raid

would appear to be ample grounds for reaching such a conclusion. It was in fact such unsupportable losses as these which had forced the Air Staff to abandon daylight bombing and resort to night operations. Harris explains: "The German defenses were so strong that it was impossible to operate regularly or with any sizable force by day, so that all our main operations were confined to the hours of darkness. But at night, the bomber crews were hardly ever able to find their targets even though, before I took command, it had already been decided that all our main attacks should be against large industrial areas. This meant, of course, large industrial cities as a whole."

Harris elaborates further: "With the equipment then available, it would be extremely lucky to hit a large town by night. This did happen occasionally." He then describes one such occasion and continues: "But this was wholly exceptional, and had to be regarded as such. Night photographs taken during June and July of 1941 showed that of those aircraft reported to have attacked their target in Germany only 1 in 4 got within 5 miles of it; and when the target was in the Ruhr, only 1 in 10. The proportion of total sorties, including those aircraft not reported as having attacked the target, was, of course, much lower."

Supported by such evidence as this, which piece by piece is emerging in some abundance, an extraordinary situation is disclosed. In the interwar years, the Air Staff had evolved and preached the doctrine of long-range war by obliteration and the concomitant doctrine of "air superiority" to make the former a practicable proposition. When war occurred, the Air Staff omitted to provide the only means by which the latter condition might be secured. We had, almost up to the end of the war, no fighter with the necessary fire power and range to escort our bomber formations. Moreover, the bombers themselves were not equipped with sufficient fire power to fend for themselves.

Thus we see that the Air Staff, unable to operate its striking forces by day, was forced to work them at night. For perhaps the first 3 years of the war, up to 90 percent of the effort was abortive. Contrast this with the bombing record of the American air forces in the Pacific which, on the evidence of an exceptionally elaborate photographic check system, were at this time claiming a positive bombing efficiency of 87.9 percent.

The Air Staff theory of an interminable campaign to secure absolute dominance in the air was born out of the conception of the separateness of the air war. This concept was rejected by the Americans, whose air services were, until recently, an integral part of their Navy and Army; and by the Germans, whose *Luftwaffe* was designed mainly to operate with the Army. As a consequence, while it has always been possible for the Royal Air Force to employ itself on what has been not inaccurately described as its private wars, the American and German air operations have always been an integral part of the main naval or military plan. Within such a plan, the Americans—as well as the Germans—had what Lord Tedder terms a simple formula for securing dominance in the air when and where it was necessary.

The Americans' simple formula for beating the Japanese out of the skies was to concentrate fire power at the decisive point. Their fighters, not so nimble as the Japanese Zeroes and Zekes, but more sturdy, carried far greater fire power than their enemies. Moreover, the American bomber could produce fire power half again as heavy as its escorting fighter.

So we reach the ineluctable conclusion that, just as fire power is the battle-winning factor on land and at sea, so is it the ultimate factor in the air. In certain conditions, the term "air superiority" may

have a precise and positive meaning, but only in the sense that it may be possible to use such terms as "tank superiority," "artillery superiority," and "rifle superiority." To attempt to read more into it than that is to make it a slogan or catchword differing essentially from no other slogan or catchword which, in this credulous age, finds easy acceptance regardless of truth, fact, or probability.

The Crow and the Mole

Digested by the MILITARY REVIEW from an article by John W. R. Taylor in "The Royal Air Force Quarterly" (Great Britain) January 1949.

DAZZLED by the devastating possibilities of "push-button" weapons of tomorrow, there is a growing tendency in America and Great Britain to disregard the menace of well-proved weapons of today. Stories of the destruction of Hiroshima and Nagasaki by the atomic bomb have been followed by endless forecasts of what will happen in a third world war, with radio-controlled atom-rockets. The fact is that although great progress has been made in the development of guided missiles, extensive push-button warfare is still a distant dream or nightmare.

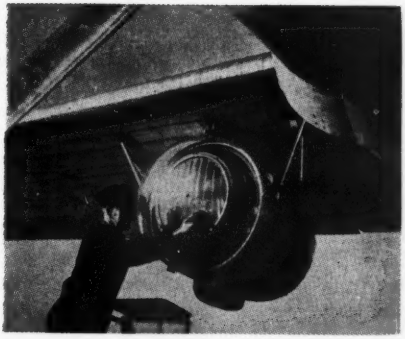
One of the most dangerous weapons in the world today is the weapon that nearly brought Britain to her knees in the last war—the submarine. We have been told that carrier-based aircraft, or shore-based aircraft, or escort warships "were responsible for eliminating the German submarine menace" by the end of the war. *This is dangerously untrue, for the U-boat menace never was eliminated.* In cold, hard figures, U-boats sank 44 Allied ships in the last 2 months of the European war. That is pretty good for a force which has been "eliminated" so many times in print.

The war against the U-boat was a terrific struggle lasting 5½ years, in which neither side retained an advantage for long. Fortunately, the Allies succeeded in subduing U-boat activities at vital stages of the war, notably during the invasions of North Africa and Normandy. Even more fortunately, they were able to end the war before Germany was able to put into service powerful new types of U-boat that could have brought a return of the dark days of 1941.

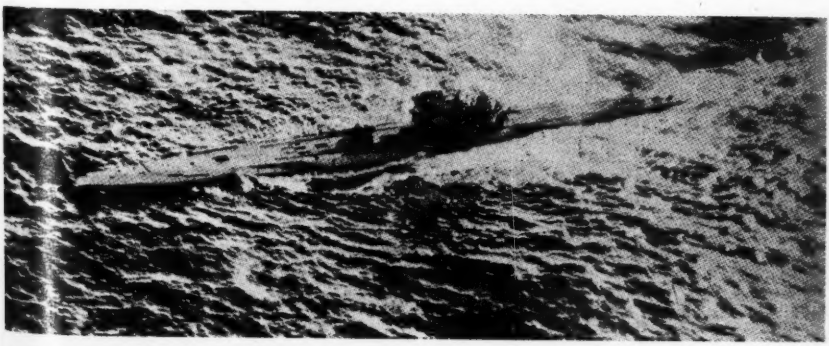
Round one of the struggle went to Germany. She started the war with a powerful U-boat force against which Britain could muster only a few hopelessly inadequate aircraft, each armed with two 100-pound bombs. The U-boats simply sailed beyond the range of these aircraft and there operated at will.

Fortunately for Britain, those early U-boats had a weakness. They had a submerged speed of only 2 to 3 knots and had to surface for several hours each day to ventilate, and to recharge their batteries. As soon as it had enough aircraft and the first aerial depth-charges were available, RAF Coastal Command went on the offensive, attacking surfaced U-boats in the Bay of Biscay and in northern waters en route to their patrol areas.

The introduction of airborne radar in May 1941 gave the RAF its first real break. The difficulties of searching for a small U-boat in a very big ocean with only a few aircraft were reduced, and U-boat killings improved in indirect ratio with a lowering of morale among U-boat crews. The U-boats were able to surface only at night, which slowed their progress through the "killing" zones and reduced the time they could spend in patrol areas.



Despite many effective measures which the British took against the German U-boat in World War II, the submarine continued to be a real menace to the very end. In any future conflict, this British writer believes, the U-boat may again prove to be a difficult weapon to counter. Above, a German U-boat of World War II is shown under attack by depth charges and cannon fire. Right, a radar-guided airborne searchlight used by the RAF Coastal Command. Below, a close-up view of a U-boat that had been hit, just before it blew up and sank.



But the respite was only temporary. When America entered the war, the U-boat packs sailed *en masse* for the American Atlantic coast and the Caribbean. There they were able to cause tremendous havoc among merchant ships that had virtually no air cover. In fact, it was so easy that they no longer minded having to waste time getting through the Bay of Biscay. Killings fell off and the grimmest period of the struggle began.

The RAF countered in May 1942 with the radar-guided airborne searchlight, which came as a surprise to the Germans who often could not detect the presence of the aircraft until they were illuminated. They had no time to dive and were not fitted with antiaircraft guns. In desperation, they surfaced by day so they could see the searching aircraft. This was just what Coastal Command had hoped for. U-boat after U-boat was sent to the bottom.

The struggle had developed into a battle to the death between Allied air power and the German U-boat flotillas. It is to their credit that the German High Command never lost faith in the U-boat, believing, as Grand Admiral Doenitz remarked, that "aircraft can no more eliminate the U-boat than a crow can fight a mole." He forgot that the German "mole" had to come to the surface to breathe. He could not have known then that the "crow," never sleeping, would one day have eyes that could see equally well by day and night, and "talons" that could attack the "mole" even when it was beneath the surface.

Slowly, the extent of the air attack at sea mounted. The first long-range bombers went into service simultaneously with tremendously powerful new depth charges. In the Bay of Biscay, sinkings increased by 300 percent. But there was still a 600-mile "gap" in mid-Atlantic beyond the range of land-based aircraft from Britain or America. It was sure that the U-boats concentrated their attack against the ships bringing food and war supplies to Britain.

In January 1943 at the Casablanca Conference, the defeat of the U-boat was made the No. 1 priority commitment of the Allied Forces. Within 5 months, the turning-point in the U-boat war was reached. Very long-range four-engined aircraft, flying a shuttle service between the United Kingdom, Iceland, and Newfoundland, closed the "gap," and the first escort carriers, equipped with fighters and torpedo-bombers, went into action with outstanding success.

For the first time, complete convoys began to get through to Britain without loss, although often having been surrounded by U-boat packs which did not dare attack in the face of the continuous air escort. The U-boats were by this time armed with antiaircraft guns. When sighted, they usually decided to fight it out on the surface. This only resulted in even more sinkings. At about this time, the Royal Navy allocated ships to cooperate with the antisubmarine aircraft. Thus was born the air-sea team which ended the U-boat's last chance of victory. The U-boat war was by no means over, but U-boat "killings" rose steadily. In 3 months, to August 1943, the Germans lost 30 U-boats a month, which reduced the number operating in the Atlantic by 50 percent.

German scientists were constantly working on new devices to counter the Allied antisubmarine forces, and the enemy never lost faith in the war-winning potential of the U-boat. But for a time he had had enough and had to wait for new equipment. This waiting cost Germany the chance of breaking up the vast invasion armada on D-day, and so it cost Germany the war. It was estimated that 130 U-boats would be available on D-day and that this number would go up to 200 by D-plus-14. But so completely had the Allies mastered the situation that not one U-boat succeeded in reaching the convoy

lanes or the assault area during the first vital stages of the invasion.

Even when the Allies began the last great drive against the heart of Germany, the enemy still retained his faith in the U-boat and his reprisal weapons to snatch victory out of defeat.

German scientists did not fail the U-boat crews. Even as the war drew to a close, new and very powerful types of U-boat were being constructed. Even more important, a device known as the *Schnorkel* had been developed which enabled U-boats to charge their batteries and to be ventilated without having to surface. Fortunately, with the exception of the *Schnorkel* and the relatively useless midget U-boats, the new devices and new types of U-boat did not have a chance to become operational. But the fact that during March and April 1945 no less than 44 Allied ships were sent to the bottom is proof that the U-boat still constituted a grave and unsubdued threat.

Altogether, Germany built 1,175 U-boats of which about 790 were destroyed. Of these, 196—one out of every six built—were sunk by aircraft of RAF Coastal Command. This surely is the best possible answer to Admiral Doenitz.

But the shadow of the submarine menace still lies across the now peaceful shipping lanes of the world. There are already in existence powerful new submarines able to dive to greater depths, to remain submerged for longer periods, and to proceed under water at far higher speeds than any used in the last war. Even more sinister than the U-boat as we know it are possible future developments. The U-boat of tomorrow may be nothing less than a submersible battleship or aircraft carrier. Able to approach its target at a depth that would make it invulnerable to attack or even detection, it could surface for a short time, fire a series of radio-controlled rocket missiles, and then dive to safety once more. All that sounds like highly imaginative "science fiction" stuff, but so did atomic bombs and jet planes a decade ago.

It is against this menace that we must always be ready to defend ourselves. The weapons of the last war are obsolete. We need new scientific aids to detect U-boats far below the surface, new weapons of tremendous power to attack them there, and new ships *and particularly aircraft* to carry those weapons into action.

I feel certain that the most potent challenge within the foreseeable future will come from the submarine. We will require the maximum efforts of our scientists, the maximum output by industry, and the maximum performance by the young men and young women of this country.

Rear Admiral Charles B. Momsen

Combat in Wooded Terrain

Translated and digested by the MILITARY REVIEW from an article by Lieutenant Colonel Carlo Maraschi in "Rivista Militare" (Italy) October 1948.

WOODED areas exert great influence on the normal employment of military units. In general, woods are favorable to surprise and ambuscade. The field of view is limited, and the efficiency of infantry and artillery fire is greatly reduced. Movement is slow and orientation difficult. Normal distances and intervals within units are shortened when operating in woods. Ground observation and communication depend almost exclusively on radio, since visual communication is inefficient and sound communication jeopardizes the possibilities of surprise. Aerial observation produces little or no information. Since woods localize and reduce the efficiency of all arms, decentralization becomes necessary. Combat is broken up into small, separated actions, making it difficult to have a complete view of the development of the battle. Under these conditions, the coordination of the various arms is harder to achieve, and the exercise of command is consequently more difficult.

Combat in wooded terrain, therefore, is one of the most difficult forms of war. It requires the use of highly trained, skilled forces with a high state of morale, discipline, and initiative. Attacking units must be strongly aggressive. The defender must be tenacious and willing to react vigorously to any attack. There must be a maximum of prior preparation and coordination.

Offensive Combat

In view of the above, it is evident that the attacker will avoid combat in woods, if possible.

The attacker will attempt to avoid small wooded areas by going around them and covering them with his fire. He will neutralize them with artillery, using incendiary or smoke shells, but he will not venture into them with his forces.

If the woods are extensive, the attacker will generally be forced to enter the woods in order to occupy and pass through them.

In this case, the procedure will be as follows:

Make a tactical reconnaissance of the woods.

Occupy the front edge of the woods, which will act as a springboard from whence the attack can be launched.

Attack the adversary in the woods, employing light weapons and patrols.

Emerge rapidly from the woods after they have been crossed.

The crossing of woods is a critical period for attacking troops, and it is necessary to reduce this period to a minimum. On the other hand, it will be to the interest of the enemy to prolong this critical period. Hence, rapid, decisive movements, based on the bold action of a few troops rather than on the action of the mass, are essential for the attacker. The mass of the attacking forces, however, must be prompt in exploiting the successes of the few.

In woods with dense undergrowth, movement is limited to roads or paths. In this type of woods, visibility is greatly reduced; the danger of ambush and surprise is always present. Strong patrols, well-armed and well-led, must be used to uncover the enemy. Patrols must occupy road junctions and intersections until they can be strongly secured by the troops of the main column. Patrols must be released as quickly as possible, resupplied and reorganized, and allowed to continue their advance.

Woods made up of tall trees have only light underbrush or none at all. Patrols operating in this type of terrain should have rifles equipped with telescopic sights, binoculars for observation, and light radio sets to transmit reports and orders.

In a dense woods with much undergrowth, the lack of freedom of movement and visibility will also affect the enemy. However, the enemy will utilize this cover to construct obstacles, install barbed wire, plant mines, or take other measures which will make the advance of the attacker slow and costly. The defender will camouflage all positions in order to facilitate surprise. If the enemy has not been able to organize a continuous defense, he will prepare separate centers of resistance. These will form a more or less close network, depending on the density of the vegetation and the time available for organization of the position.

The strong points of this position will be organized around junctions and intersections, which are the vital nerve centers of the woods.

Patrols must act with energy and initiative. They must filter through the separate centers of resistance and overpower them by attacks from the flanks or rear. When patrols are engaged on the flanks or in the rear of the enemy, the main units should support them by making a frontal attack.

Since action of this type consists of isolated but active engagements, its coordination must be left to the commanders of the most advanced units. The larger units support the action of the smaller units.

In our opinion, the two functions of reconnaissance and security, which generally are separated, go hand in hand in woods.

Reconnaissance in woods must be bold but prudent. Hence, a few strong patrols are generally required. Surprise in woods is overcome by keeping the forces together and not by dispersion. Hence, reconnaissance in woods must be made in strength.

On the other hand, security cannot be absolute. It is impossible to comb woods completely.

Patrols must be able to uncover the enemy, force him from his hiding places, pin him down, and hold him in place. The task of engaging and annihilating the enemy is left to the main attack forces.

The attack body should be divided into several columns, depending on the network of roads running through the woods. The roads, paths, or trails in woods form arteries that are both logistical and tactical. Possession of these arteries may be tantamount to possessing tactical control of the woods.

Decentralized Control

To a large extent, it is necessary to rely on the initiative of subordinate commanders. The columns must keep close contact with their own patrols. When these patrols engage a center of resistance, the columns must close in rapidly, engage the enemy frontally, and rapidly free the patrols for further action.

The attack force also must act boldly. This means that their organization and equipment must be suited to the mission. Arms should be light. Officers and men should be armed with automatic weapons and well supplied with hand grenades. Infantry guns and light artillery should be available for short-range action. Engineers should be available to remove obstacles.

Armored forces can maneuver in tall woods when the trees are not too close together. As a rule, however, armor is greatly limited in movement.

The proper direction of movement may be assured by radio or by visual signals where possible.

Both patrols and attacking forces should avoid halting in clearings, or at junctions

or intersections of paths and roads. Woods should be passed through, not used as a halting place.

Snipers, and men armed with submachine guns and stationed in neighboring trees, help in dominating and controlling a clearing.

The first echelons must always advance in combat formation. Time cannot be wasted in changing formations, since the enemy will almost certainly appear unexpectedly.

Fire and movement must be maintained at the same time. All infantry fire is marching fire. Close contact is maintained between the attacking units: those in front, those on the flanks, and those in the rear in reserve.

The reserve is the most effective means of dealing with surprise. The reserve also must shape its action to the concept of prudent boldness.

Action After Clearing Woods

After clearing the interior of the wooded area, the forces must be assembled and organized according to their successive objectives.

This reorganization must be completed in the briefest time possible, for the enemy will concentrate his fire, especially his artillery, on the edge of the woods from which the attack must emerge. This phase constitutes another critical period for the attacker, and it must be passed over as quickly as possible.

Units that have been previously organized should follow the reserve and take up the pursuit as soon as the enemy has been driven from the woods. Motorized or armored forces should be used in the pursuit.

Sometimes an attacker may not be able to take a woods in a single day of fighting. If forced to stop for one or more nights in the woods, the attacker must assume a stronger defense during the halt than would normally be necessary.

Only rarely will night reconnaissance patrols be used. No great results can be achieved by them and they might be seized by the enemy.

Security will be sought by close contact with the main body and by the employment of automatic weapons and listening posts.

Care must be taken to block the roads and paths leading to the halting place. It is particularly important that road junctions be under surveillance and covered by fire.

Surveillance must be maintained completely around the main body of halted forces. It is well to divide the perimeter into sectors. Particular care will be taken to select assembly places to be used in case of an enemy attack. A strong reserve force will be in the center of the position.

The air force must control the edges of the woods and report any enemy movements.

The problem of supplying the troops that are moving through woods is not simple. Roads are scarce and there are few natural resources. The supply of water may be a special problem. The logistics of the operation must be studied in detail and supply must be undertaken at night.

Defensive Combat

More than it is in other types of operations, the attack is the best defense in woods. The defense must be based on fire and movement. Obstacles are easily constructed making use of logs, abatis, undergrowth, and barbed wire.

The defense must channel the attack into zones which are favorable to counterattack.

The defense must be capable, with movement supported by fire, of making its capacity of resistance and attrition equal to the attacker's capacity for penetration.

It is necessary to give depth to defense in order to wear the enemy down and to

prolong the difficulties of his operations as long as possible.

The defense position must not be located on the edge of the woods. It should be farther inside the woods and protected by camouflaged obstacles. Fields of fire for centers of resistance should be broad, and the position should be connected with the interior of the woods by clearly marked paths.

In order to counter any infiltration of its position, the defense will attempt to cut off small units quickly and to envelop and destroy the columns. It will establish strong defensive flanks in places which have been penetrated.

The reserves are placed in position back of the defensive line, somewhat off to the flanks and at such a distance as to be able to intervene promptly and easily.

Heavy infantry weapons and light artillery in the defense are placed as far forward as possible without limiting their action. Their positions must be far enough to the rear to safeguard them from the first impetus of the attack.

A possible withdrawal must be studied out beforehand with reference to zones and locations suitable for stopping or slowing down the attack. It must be remembered that the attacker cannot follow his fire in woods and his movement is necessarily slow and almost entirely limited to the roads.

Signal communication, even the use of wire, should be carefully provided for in advance.

Training for Combat in Woods

Since training for combat in woods is unusually difficult, it is necessary that considerable time and care be devoted to it in order to obtain satisfactory results.

Orientation is one of the problems that must be met. Squad leaders must be taught to use compasses and topographic maps.

Training must be given in methods of maintaining direction, in overcoming obstacles, and in maintaining contact with adjacent units.

Methods of carrying various arms and equipment must be developed in order not to impede movement. Groups equipped with cutting hooks and other light implements must be trained in opening passages through low woods and underbrush.

Personnel must be trained in listening. In woods, one must depend on hearing more than on sight, and maximum silence must be preserved.

Action in woods requires strong men. Therefore the troops must be developed physically. Troops must be trained for different rates of march, first without arms and then with all arms and equipment.

In woods, danger appears almost without warning and at close distances. Training in the technique of the various weapons is therefore very important. A soldier must know how to use his weapons well and rapidly.

The sense of uneasiness that prevails when moving in woods must be overcome, and the soldier must develop confidence in himself and in his weapons. Troops must be taught not to stop in clearings. The importance of road junctions and intersections must be stressed.

It is necessary to guard against offensive action from all directions. Hence, "hedgehog" formations, especially in the case of patrols, must be used. Snipers concealed in the tops of the trees must be guarded against. In every patrol or unit, a few men armed with machine pistols should be designated for this particular mission.

The spirit of initiative must be developed. The troops must become accustomed to radio communication and arm signals. Sound and light signals cannot be employed. Radio communication may be combined with the use of carrier pigeons. Often messengers will be the only means of liaison that will be available, for even radio is subject to considerable limita-

tions in woods. The use of dogs in wooded areas is especially effective.

The above concepts hold good for all arms. Other specific points that should be stressed are as follows:

1. The infantry must be trained for rapid, hard-hitting, decisive action. A spirit of team action must be developed as well as close coordination of units that are operating in contact with one another.

2. Stress should be placed on the fact that woods cannot be trusted by the attacker and they must be passed as rapidly as possible. Halts must be limited only to those that are absolutely necessary. On the contrary, woods aid the defense, favoring ambushes and surprise.

3. The technique of ambuscade must be taught, with its characteristics of stealth and aggressiveness.

4. The training of patrols must be carefully perfected.

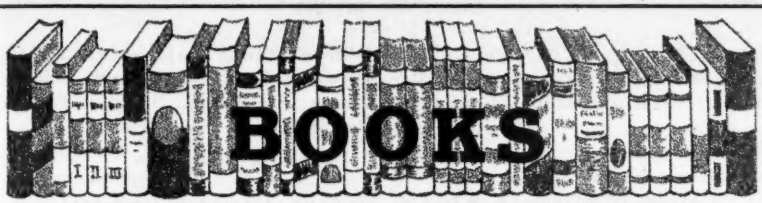
5. Light artillery must be placed well forward and operate in cooperation with the infantry units. It must be decentralized, even down to individual pieces. Rapid fire and direct aiming are necessary.

6. Engineers must be trained to act in close support of infantry and artillery. In the attack, engineers will be employed to facilitate rapid movement. In the defense, engineers will be used to construct osbtacles which can be made easily and quickly in woods.

If avoiding . . . woods is impracticable and their possession is necessary, the attacker seeks to capture the woods by enveloping action. When enveloping action is inexpedient, the woods are attacked frontally. The attack is directed first against the salients which are neutralized by the fire of the artillery and other supporting weapons, reinforced by that of combat aviation. This supporting fire is maintained until the assault echelon is ready to rush the salients, when it is lifted to the reentrants of the woods, or to suitable targets within or on the far side of the woods.

The near edge of the woods is carried like any other position and then is used as a line of departure for the advance through the woods. The dispositions to be taken for this second phase of the attack depend largely upon the character of the woods. In sparse woods, formations are employed resembling those on open ground, but with greater density in the leading echelon. In dense woods, small columns are more effective in the leading echelon. Measures are taken to insure direction, cohesion, and signal communication between the columns. Supports are formed in column and closely follow the assault units. The vulnerability of the flanks to attack requires special measures for their protection.

FM 100-5, Field Service Regulations, Operations



FOR THE MILITARY READER

THE WORLD'S BEST HOPE. By Francis Biddle. 175 Pages. The University of Chicago Press, Chicago. $3.50.

Mr. Biddle was Attorney General of the United States during World War II and American member of the International Military Tribunal which tried the principal German war criminals. In this book, he examines America's new role in world affairs and the formulation of a new United States foreign policy. The events which removed Great Britain as the "balance wheel" of Europe and thrust America into the international role that England once held, he contends, were not clearly seen in the United States until 1947. Now, the new foreign policy seems to be directed at sustaining democratic institutions in Western Europe. The author believes that socialism and the doctrine of free enterprise can be democratic, but that communism cannot. In a final chapter devoted to our own government, Mr. Biddle says that we have inherited a provincial and parochial point of view, normal to our federal traditions, but not calculated to express an international, or even national, outlook.

ORDEAL BY FIRE. By Fletcher Pratt. 404 Pages. William Sloane Associates, New York. $5.00.

First published in 1935, this history of the American Civil War has now been reissued. Bernard de Voto calls it the "best one-volume history of the Civil War I've ever read."

IF RUSSIA STRIKES. By George Fielding Eliot. 252 Pages. The Bobbs-Merrill Company, Indianapolis, Indiana. $2.75.

A strategic estimate of Russia's military potential up to the early part of 1949 forms the basis of Major Eliot's latest book. The scope of the author's analysis is indicated by the subject of various chapters: What Does the Kremlin Want?; Balance Sheet of Power; Could Russia Take Western Europe?; The Submarine in Russian Strategy; Could Air Power Defeat Russia? The author sees two dominant military facts in the world at present: the overwhelming Russian superiority on land; and the overwhelming American-British superiority in strategic air power and sea power, plus possession of atomic weapons.

FEAR, WAR, AND THE BOMB. Military and Political Consequences of Atomic Energy. By P. M. S. Blackett. 254 Pages. Whittlesley House, New York. $3.50.

Much of this book, by a British author who won the 1948 Nobel award in physics, deals with the effects of the bombing offensives in World War II. He points out the differences of opinion as to the military effect of the atomic bomb, and believes that a future war between major powers will not be decided by atomic bombing alone. One chapter discusses why America used the atomic bomb; the author contends that it was not military necessity, but power politics, that dictated its use.

THE ALLIED OCCUPATION OF JAPAN. By Edwin M. Martin. 155 Pages. Stanford University Press, Stanford, California. $3.00.

The political, economic, and strategic factors that have shaped American occupation policy in Japan are set forth in this volume by the former Chief of Occupied Area Economic Affairs of the United States Department of State. The book covers such subjects as the formulation and execution of Allied military policy, territorial changes, disarmament, demilitarization, democratization, pacification, and various "housekeeping" problems.

LANDING OPERATIONS. By Dr. Alfred Vagts. Military Service Publishing Co., Harrisburg, Pa. $7.50.

Landing operations in World War II assumed a magnitude and diversity never before experienced in warfare, but they did not create a new type of military enterprise. The author traces the history of landing operations from the early Greek ventures down through 1945. The only new participating element introduced into this type of operation in World War II, Dr. Vagts indicates, was the use of paratroops.

ADVANCE IN MILITARY MEDICINE. Edited by E. Cowles Andrus and others. 970 Pages. Two volumes. Little, Brown & Co., Boston. $12.50.

The record of the advances made in military medicine during World War II is set forth in this two-volume work. The authors prepared their work under the sponsorship of the Committee on Medical Research and Development. The material in the two volumes is divided into 10 parts, dealing with these subjects: Medicine, Surgery, Aviation Medicine, Physiology, Chemical Warfare Agents, Anti-Pest Agents, Adrenocortical Steroids, Malaria, Penicillin, and Sensory Devices.

WORLD POLITICAL GEOGRAPHY. By G. Etzel Pearcy, Russell H. Fifield, and others. 653 Pages. Thomas Y. Crowell Company, New York. $6.50.

Political geography, a subject which is becoming of increasing importance to military students, is treated on a world-wide scope in this book. The book not only deals with the major powers but also with the smaller nations and areas where the varied interests of the great powers often come into conflict. Besides the two principal authors, 32 other specialists in geographical subjects have contributed to the volume. One section of the book deals with the nature and scope of political geography. The part on the world powers is limited to the United States, the Soviet Union, and Great Britain. Other sections treat, in considerable detail, Europe, Asia, Africa and Australasia, and Latin America. In the final part on special aspects of political geography, there is a separate chapter on the grand strategy of World War II.

CANADA. An International Power. By Andre Siegfried. Duell, Sloan & Pearce, Inc., New York. $3.50.

First published 10 years ago, this book has been revised and rewritten as a result of an invitation of the Canadian government to the author to revisit the Dominion in 1945. New material includes a chapter on "Canada and the Second World War" and more data on Canada's foreign policy.

COMPANY ADMINISTRATION. By Colonel C. M. Virtue. Military Service Publishing Co., Harrisburg, Pa. $2.50.

Colonel Virtue's well-known guide for unit administration has been revised in a new edition. The subjects treated in previous editions have been brought up to date, and there is new material on the Career Guidance Program and the Enlisted Efficiency Report.